UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

SAS INSTITUTE INC., Plaintiff, vs. WORLD PROGRAMMING LIMITED, DECEMBER 2015 SOFTWARE LIMITED, LUMINEX SOFTWARE, INC., YUM! BRANDS, INC., PIZZA HUT, INC., and SHAW INDUSTRIES GROUP, INC., Defendants.	Civil Action No. 2:18-cv-295 **Jury Trial Demanded**

SECOND AMENDED COMPLAINT

Plaintiff SAS Institute Inc. ("SAS") makes the following allegations against Defendants World Programming Limited ("WPL"), December 2015 Software Limited ("D2S"), Luminex Software, Inc. ("Luminex"), Yum! Brands, Inc. ("Yum"), Pizza Hut, Inc. ("Pizza Hut"), and Shaw Industries Group, Inc. ("Shaw"), (collectively "Defendants"). SAS alleges that all Defendants are liable to SAS for copyright infringement of the SAS System and SAS Manuals, described below. SAS alleges that WPL, D2S, and Luminex are liable to SAS for contributory and vicarious copyright infringement of the SAS System and SAS Manuals. SAS alleges that Defendants WPL, D2S, Yum, and Pizza Hut are liable for infringement of U.S. Patent Nos. 7,170,519 ("the '519 Patent"), 7,447,686 ("the '686 Patent"), 8,498,996 ("the '996 Patent"), and 6,920,458 ("the '458 Patent") (collectively, the "Patents-in-Suit").

THE NATURE OF THE ACTION

1. This is an action for (a) copyright infringement arising out of Defendants' willful infringement of various copyrighted SAS materials, and (b) the willful infringement of SAS's Patents-in-Suit by WPL, D2S, Yum, and Pizza Hut.

2. Starting as early as 2003, WPL commenced a plan to create a clone of SAS's industry-leading business analytics software, including without limitation SAS's SAS System, Release 8.2, and SAS Learning Edition versions 1.0, 2.0, and 4.1 (collectively, including all other releases of SAS's business analytics software, the "SAS System"). Through a series of illegal activities, including fraud and unfair and deceptive trade practices, WPL copied the design output and structure, sequence, and organization ("SSO") of the SAS System as well as substantial other non-literal creative input and output elements of the SAS System. WPL also wrongfully copied the manuals that SAS created for the SAS System (the "SAS Manuals") by taking portions of the SAS Manuals showing specific creative aspects of the SAS System and incorporating them in WPL's clone of the SAS System.

3. From the beginning of its development, the entire purpose of WPL's World Programming System ("WPS") software was to be a clone of the SAS System. The primary customer market for the WPS software is current and former SAS customers. In WPS, WPL intended to develop, and ultimately has developed, through making copies and derivative works of the SAS System and SAS Manuals, a clone of the proprietary SAS software, which WPL markets to SAS customers for less than the cost of a SAS license.

4. To develop WPS, WPL engaged in a series of illegal activities and illicit behaviors to procure the information it needed to create the cloned software. Among other things, through fraudulent actions, WPL improperly acquired SAS Learning Edition software not otherwise available to it and used that software in ways that violated and were outside the scope of the license agreement that WPL knowingly executed after obtaining the improper copy of SAS Learning Edition. Also, WPL attempted to fraudulently obtain a copy of and a license to the full version of the SAS System, including by lying to SAS representatives with regard to the purpose of WPL's intended use of the SAS software. SAS refused to provide a copy.

5. When WPL was rebuffed from obtaining the full version of SAS's software, WPL then wrongfully convinced a SAS customer to let WPL use the customer's licensed version of the SAS software so that WPL could further develop WPS as a clone of SAS's software.

6. In addition to infringing SAS's copyrights relating to the SAS System and Manuals, WPS incorporates technology covered by SAS's Patents-in-Suit.

PARTIES

7. Plaintiff SAS is a corporation organized under the laws of the State of North Carolina with its principal place of business at 100 SAS Campus Drive, Cary, North Carolina 27513. SAS has been in business for over 40 years. SAS software is used by most of the Fortune 500 companies. SAS is considered the world leader in business intelligence software and service, which SAS offers primarily through an integrated range of software products in the SAS System.

8. On information and belief, Defendant WPL is a private limited company incorporated under the laws of England and Wales with its registered office address listed as Worsley Lodge, Common Hill, Braishfield, Romsey SO51 0QF. On information and belief, WPL was incorporated in 1998 under the name Management Technologies Limited and thereafter changed its name on at least two occasions, adopting its current name in 2006.

9. On information and belief, Defendant D2S is a private limited company incorporated under the laws of England and Wales with its registered office address listed as Worsley Lodge Common Hill Road, Braishfield, Romsey, England, SO51 0QF. On information and belief, D2S was incorporated on December 11, 2015.

10. ~~9.~~On information and belief, Defendant Luminex is a corporation organized under the laws of California with its principal place of business at 871 Marlborough Ave., Suite 100, Riverside, California. On information and belief, Luminex regularly provides, sells or offers to sell infringing WPS software to customers in the State of Texas and this judicial district.

11. ~~10.~~On information and belief, Defendant Yum is a corporation organized under the laws of the State of North Carolina, with its principal place of business at 1441 Gardiner Lane, Louisville, Kentucky 40213. On information and belief, Yum maintains a corporate office within this judicial district at 7100 Corporate Drive, Plano, Texas 75024.

12. ~~11.~~On information and belief, Defendant Pizza Hut is a corporation organized under the laws of the State of Delaware, with its principal place of business within this judicial district at 7100 Corporate Drive, Plano, Texas 75024.

13. ~~12.~~On information and belief, Defendant Shaw is a corporation organized under the laws of the State of Georgia, with its principal place of business at 616 East Walnut Avenue, Dalton, GA 30721. On information and belief, Shaw regularly transacts business in the State of Texas and this judicial district and generally has minimum contacts in the State of Texas

JURISDICTION, VENUE, AND JOINDER

14. ~~13.~~This is an action for copyright infringement and patent infringement arising under the Copyright Laws of the United States, Title 17 of the United States Code and the Patent Laws of the United States, Title 35 of the United States Code. This Court has subject matter jurisdiction pursuant to at least 28 U.S.C. §§ 1331 and 1338.

15. ~~14.~~This Court has personal jurisdiction over Defendants because they have at least minimum contacts within the State of Texas; they have purposefully availed themselves of the privileges of conducting business in the State of Texas; they regularly conduct business within the State of Texas; and SAS's causes of action arise directly from their business and other activities in the State of Texas, including at least by virtue of their copying, making, using, selling, offering for sale, or importing of ~~WPL's~~ the WPS software in the State of Texas, or knowingly authorizing others to do the same. Further, this Court has general jurisdiction over Defendants, including due to their continuous and systematic contacts with the State of Texas.

16. ~~15.~~Venue is proper in this district in relation to Defendant WPL under 28 U.S.C. § 1391 because it is a foreign corporation not resident in the United States.

17. Venue is proper in this district in relation to Defendant D2S under 28 U.S.C. § 1391 because it is a foreign corporation not resident in the United States.

18. ~~16.~~Venue is proper in this district in relation to Defendant Luminex under 28 U.S.C. § 1400(a) because it is subject to personal jurisdiction in this district and can be found in this district.

19. ~~17.~~Venue is proper in this district in relation to Defendant Yum under 28 U.S.C. § 1400(a) because it is subject to personal jurisdiction in this district and can be found in this district. Further, venue is proper in this district as to Yum under 28 U.S.C. § 1400(b) because, on information and belief, it has a regular and established place of business in this district and has committed acts of infringement within this district.

20. ~~18.~~Venue is proper in this district in relation to Defendant Pizza Hut under 28 U.S.C. § 1400(a) because it is subject to personal jurisdiction in this district and can be found in this district. Further, venue is proper in this district as to Pizza Hut under 28 U.S.C. § 1400(b) because, on information and belief, it has a regular and established place of business in this district and has committed acts of infringement within this district.

21. ~~19.~~Venue is proper in this district in relation to Defendant Shaw under 28 U.S.C. § 1400(a) because it is subject to personal jurisdiction in this district and can be found in this district.

22. ~~20.~~Joinder of the Defendants is proper under 35 U.S.C. § 299 as the patent infringement allegations arise out of the same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing into the United States, offering for sale, or selling of the same accused product or process, namely ~~WPL's~~ the WPS software. Questions of fact common to all Defendants will arise in this action. Discovery in this action may lead to the need to add additional defendants subject to the same claims and common questions of fact.

SAS AND THE SAS SYSTEM

23. ~~21.~~SAS has been in business for over 40 years. SAS is a world leader in business intelligence software and services primarily offered through an integrated range of software products known as the "SAS System." The SAS System enables users to perform a variety of tasks related to data access, data management, data analysis (including statistical analysis), and data presentation.

24. ~~22.~~The SAS System reflects numerous creative decisions and millions of hours of difficult development and programming work on the part of thousands of SAS employees over

several decades. The SAS System represents an extraordinary achievement in the field of data management and analysis software, and constitutes extremely valuable intellectual property.

25. ~~23.~~The SAS System is the result of thousands of creative choices. The ~~structure, sequence, and operation ("SSO")~~ SSO of the SAS System is by no means mandated by any particular idea or function. SAS could have put together the SSO of the SAS System in many different ways. The SSO of the SAS System encompasses the creative expression and creative choices made by SAS.

26. ~~24.~~In addition, the taxonomy of the SAS System, including without limitation the headers, commands, and inputs, are the result of many creative choices representing SAS creative expression. This taxonomy (along with the SAS System SSO) is partially reflected in the SAS System through creatively designed programs called "PROCs," each of which encompasses numerous creative choices by SAS. The naming and taxonomy as well as the SSO and output design of the programming making up a PROC represents the expression of the PROC program written by SAS within the SAS System. There is no requirement that the various PROCs are written or structured exactly the way they are to express the idea or function of the program. Nor is the naming system of PROCs mandated in any way by any idea or function. The PROC names as well as the lines of programming, SSO and output of the PROCs (collectively, the "PROC statements") are all creative choices made by SAS, and the collection of PROC names also represents a substantial creative and copyrightable work as well as a copyrightable compilation.

27. ~~25.~~The outputs and output design of the SAS System also are a result of many creative choices by SAS. The visuals, colors, layout, arrangement, organization, and structure that make up the SAS System outputs are not inevitable results of the ideas and/or functions in the SAS System; rather, they are creative expression, the result of creative choices of visuals, colors, and structure, as well as the types of data that will be presented to the user of the SAS System and in what order they will be presented. Numerous programs on the market handle data access, data management, data analysis, and data presentation, and the outputs of those programs all look

different from one another. SAS made creative choices in deciding how its outputs should be expressed.

28. ~~26.~~The user of the SAS System works with and enters his or her programs into the SAS System by use of the SAS System's graphical user interfaces. The appearance of the SAS System's graphical user interfaces is the result of significant creative choices made by SAS.

29. ~~27.~~SAS creates many manuals to help its customers navigate the SAS System. In order to best train its customers on use of the SAS System, the SAS Manuals describe portions of and show specific creative expression of the SAS System in detail, including discussion and examples of PROCs, and pictures of the output design that will be generated from the various PROCs. The SAS Manuals provide a window into how the SAS System source code is designed as well as showing large portions of the taxonomy, inputs, commands, PROCs, PROC statements, SSO and output design of the SAS System.

30. ~~28.~~In order to protect the value of its intellectual property incorporated into the SAS System, SAS takes a number of steps to prevent other companies and individuals from improperly developing software designed to copy and/or emulate the SAS System. Examples of such steps include, but are not limited to: (1) registering versions of its manuals and its software licensed to the public with the United States Copyright Office, (2) maintaining portions of its source code as a proprietary trade secret, (3) guarding against licensing its software to companies or individuals that might misuse it (such as attempting to create a copy-cat product emulating the SAS System or other components of the SAS software), (4) licensing its software in a manner which restricts who may access the software and imposing limitations on the types of permitted use of the software, and (5) filing for and obtaining patent protection covering inventions developed by SAS.

31. ~~29.~~The Patents-in-Suit arose from the efforts and inventiveness of SAS employees developing and adding to the feature-set of the SAS System. In addition to the Patents-in-Suit, SAS has developed and owns hundreds of other patents relating to the SAS System, including U.S. Patent Nos. 6,526,408, 7,015,911, 7,068,267, 7,340,440, 7,921,359, 7,979,858, 8,271,537, 8,682,876, and 8,694,525.

32. ~~30.~~Users of the SAS System access, manage, and analyze data to present or provide results by issuing instructions to the SAS System. Those instructions typically take the form of text files containing instructions and are generally referred to as "SAS Programs" or "SAS Scripts." SAS Programs are written in a programming language developed and maintained by SAS known as the SAS Language. These SAS Programs may, and often do, become integral to a customer's organization.

33. ~~31.~~The SAS Language is very flexible. Over the years, SAS's customers have written, or had written on their behalf, thousands of application programs in the SAS Language. These can range from fairly short and simple programs to large and complex programs that involve many man-years to create. SAS customers write programs using the PROC statements created by SAS and made part of the SAS System. It is not the other way around, where the customer writes a program and then SAS or the SAS System has to create PROC statements (in a specific way or otherwise) to then make that program work.

34. ~~32.~~SAS has invested tremendous financial resources and man-hours into ensuring that when its customers' SAS Language Programs are put into the SAS System, they will be presented with a very creative and specific structure and output design that was chosen by SAS from among many possible SSOs and output designs, and is unique to the SAS System. SAS creates documentation, employs technical support staff, and provides training sessions and materials for SAS customers using the SAS System.

WPL ~~and the World Programming System~~AND THE WORLD PROGRAMMING SYSTEM

35. ~~33.~~SAS faces a number of well-known and established competitors in the market for business intelligence software that compete with SAS by offering their own software. These competitors, unlike WPL, have created their own systems, as opposed to simply copying the system and creative expression of SAS.

36. ~~34.~~Beginning in or about 2003, WPL sought to illegally circumvent SAS's intellectual property protection of the SAS System. WPL endeavored to create a clone of SAS

software, which not only would be able to execute application programs written in the SAS Language, but also would use the exact same taxonomy, user interface, inputs, commands, compilation of PROC statements, and SSO that were creatively chosen by SAS, and produce the same output in the same format and with the same design creatively chosen by SAS as a result. In other words, WPL sought not only to replicate the SAS System's functionality, but also to copy the creative elements of the SAS System so that the look, design, and SSO would be the same as the SAS System. WPL therefore developed the WPS software in order to attract SAS's existing licensees by making them believe that they would essentially be getting the exact same product as the SAS System. SAS's customers comprise the vast majority of WPL's market. WPL's current or former customers for WPS identified in non-confidential materials and public sources include AXA, BCBSNEPA (Blue Cross Blue Shield Northeastern Pennsylvania), Texas Instruments Inc., BCBST (Blue Cross Blue Shield Tennessee), Electronic Data Systems (EDS), Experian PLC, Fidelity, First Data, Franklin Templeton Companies Inc., Highmark, Huntington National Bank, IMS Health Inc. (Quintiles), KeyBank, Limited Brands, Lender Processing Services (Fidelity National Financial / Black Knight InfoServ), Mastercard, Oracle, Sabre Holdings, T. Rowe Price, and Toyota.

37. ~~35.~~ WPL intended WPS to be a drop-in replacement clone of the SAS System. In prior litigation between SAS and WPL, WPL admitted that (with limited exceptions) "the response of WPS to SAS scripts and data is intended to be identical to the response of the SAS components and is in fact identical."

38. ~~36.~~In marketing WPS, WPL touts its ability "to emulate the behavior of the SAS System Implementation for many applications" by "identically replicating the behavior of the SAS System." In fact, WPL designed its system to emulate even the idiosyncrasies of the SAS System, down to thousands of SAS's creative choices regarding taxonomy, user interface, inputs, commands, PROC statements, SSO, and output designs.

39. ~~37.~~In order to create the copycat of the SAS System that WPS embodies, WPL engaged in numerous nefarious acts discussed in more detail below.

~~The~~ THE SAS/WPL ~~North Carolina Litigation~~NORTH CAROLINA LITIGATION

40. ~~38.~~On January 19, 2010, SAS filed suit against WPL in the United States District Court for the Eastern District of North Carolina alleging (1) copyright infringement, (2) breach of license agreement (alternatively, (3) tortious interference with contract), (4) tortious interference with prospective economic advantage, and (5) unfair and deceptive trade practices/unfair competition (the "North Carolina Litigation"). Based on discovery obtained during the North Carolina Litigation, the court allowed SAS to amend its Complaint to allege that WPL obtained licenses to use certain SAS software by fraud.

41. ~~39.~~The causes of action in the North Carolina Litigation all stem from WPL's efforts to design the WPS as a clone of the SAS System. At virtually every step in WPL's development efforts, WPL copied the SAS System, breached its license agreement for SAS software, and relied on and/or induced other SAS licensees to breach their license agreements with SAS.

42. ~~40.~~Discovery in prior litigation revealed that WPL's first stage of development was to review and copy from the SAS Manuals obtained from SAS's website. The SAS Manuals give an extensive window into the creative expression of the SAS System because they describe portions of and show specific creative expression of the SAS System in detail, including discussion and examples of PROCs, and pictures of the output design that will be generated from the various PROCs. The manuals, however, often did not fully provide the detail necessary for WPL to completely replicate either the functionality or all the creative choices of the SAS System. Thus, WPL also used the software known as SAS Learning Edition (which was a limited and restricted version of the SAS System designed to allow students and potential users to learn to use the SAS System) to develop WPS.

43. ~~41.~~Throughout the years of development, WPL obtained at least twelve copies of the SAS Learning Edition. When installing the SAS Learning Edition, WPL was presented with the SAS Learning Edition license agreement and was required to agree to its terms as a condition to installation. Those terms prohibited (among other things) the user from (1) using the program

for production purposes, and (2) reverse assembling, reverse engineering, decompiling, or otherwise attempting to recreate SAS's source code. WPL intentionally and repeatedly violated these terms by using the SAS Learning Edition to design and develop its competing product, WPS. WPL also repeatedly attempted to obtain licenses to the full version of the SAS System by attempting to mislead SAS as to why they were seeking a license; WPL was rebuffed on each attempt.

44. ~~42.~~Having failed to obtain a license to the SAS System directly through SAS, WPL improperly gained access to the full version of the SAS System by wrongfully using SAS software licensed by at least one of SAS's customers.

45. ~~43.~~WPL improperly gained access to the full version of the SAS System another way. In or about 2003, WPL was contacted by a company called CA Technologies ("CA"). CA offered a software product called MICS that ran on the SAS System. MICS is a large, complicated program that is run on a mainframe computer.

46. ~~44.~~Upon information and belief, CA was interested in WPS as a less expensive alternative to the SAS System for providing MICS to its customers at a lower cost. CA worked with WPL over the next several years to create a version of WPS that could run MICS. CA and WPL called this secret effort "Project X."

47. ~~45.~~As WPL contractor Steve Bagshaw testified, CA gave WPL access to the SAS System on CA's mainframe in an attempt to speed up the process. Later, in May of 2008, WPL again requested, and CA granted, access to CA's SAS System.

48. ~~46.~~CA's license agreement with SAS, however, provided that CA would not "provide or otherwise make available any licensed IPP [SAS Institute Program Products] in any form to any person other than [CA's] personnel."

49. ~~47.~~In addition to work on Project X, WPL also did work for other of its customers on CA's mainframe. In one instance, one of WPL's customers, SDDK, reported an issue regarding certain missing information in WPS. WPL then used the CA system to test the output of both SAS and WPS, and reported the results.

50. ~~48.~~WPL's intent, evidenced at least by the WPS program itself and WPL's various statements and actions, was to make sure to copy significant non-literal elements of the SAS System, duplicating thousands of SAS creative choices and resulting in the same taxonomy, user interface, inputs, commands, SSO, and output designs.

51. ~~49.~~These and other actions by WPL were introduced into evidence in prior litigation between the parties. Ultimately, following a jury trial, SAS prevailed on its breach of contract, fraud, and unfair and deceptive trade practices claims resulting in a judgment totaling over $79 million.

52. ~~50.~~The District Court in the North Carolina Litigation found that the evidence showed that "[WPL] used underhanded and fraudulent methods to acquire Learning Edition licenses" and that "[WPL] used the Learning Edition software to create a virtual clone of the SAS System." Memorandum Opinion and Order, Case No. 5:10-cv-00025, ECF 599, at 11, 26.

53. ~~51.~~The judgments in favor of SAS in the North Carolina Litigation were affirmed by the United States Court of Appeals for the Fourth Circuit.

54. ~~52.~~A District Court decision on SAS's copyright infringement claim was completely vacated by the United States Court of Appeals for the Fourth Circuit. On remand, the District Court dismissed the copyright infringement claim without prejudice. Thus, for purposes of the law, SAS's copyright claims in that case are treated as if they never happened and no ruling on its merits was ever made.

WPL TRANSFERS ITS INTELLECTUAL PROPERTY TO D2S

55. On or about December 11, 2015, WPL's shareholders formed Defendant D2S.

56. WPL's shareholders formed D2S because, in October 2015 and as discussed above, a jury sitting in the Eastern District of North Carolina returned fraud and breach-of-contract verdict against WPL and in favor of SAS, both related to WPL's development of the WPS software.

57. [redacted]

[redacted]

58. [redacted]

59. [redacted]

60. WPL and D2S have – and at all relevant times, including January 13, 2016, have had – common directors.

61. [redacted]

WPL'S CUSTOMERS AND RESELLERS

62. ~~53.~~WPL's target market for the WPS software consists primarily of SAS customers.

63. ~~54.~~The main benefit of WPS touted by WPL is that customers of SAS can use their existing SAS Programs and SAS datasets with the WPS software to obtain the same results that the SAS System would produce, including all of the SAS creative choices, such as use of the same taxonomy, user interface, inputs, commands, SSO, and output designs and formats, all for a lower license fee.

64. ~~55.~~When customers license and use WPS, they make copies and derivative works of the infringing WPS software, and therefore wrongfully copy the SAS System (and the SAS Manuals, which have been incorporated into WPS), in numerous ways, including without

limitation by copying the SAS System when it is installed on their computers, when it is loaded into memory as it is being run, and when it is generating logs and outputs.

65. ~~56.~~WPL also provides its knock-off SAS System clone to other companies such as Luminex (collectively, "Re-Sellers"), who provide, sell, or offer to sell copies of the infringing system, and therefore wrongful copies and derivative works of the SAS System and the SAS Manuals, to current, former, and potential customers of SAS in competition with SAS.

66. ~~57.~~On information and belief, WPL customers and Re-Sellers are aware WPS is intended as a SAS clone.

67. ~~58.~~On information and belief, certain WPL customers and/or Re-Sellers are aware of WPL's prior litigation with SAS and further are aware of the legal risks of utilizing and copying the WPS software.

68. ~~59.~~On information and belief, in response to customer and/or Re-Seller demand, WPL indemnifies its customers and Re-Sellers against infringement of intellectual property claims.

69. ~~60.~~Customers of WPL and Re-Sellers of products incorporating WPL's knock-off system knew or should have known that the SAS System and the SAS Manuals were proprietary and covered by a plethora of intellectual property rights.

70. ~~61.~~The customers that have licensed WPS (such as Defendants Yum, Pizza Hut, and Shaw) either ignored these intellectual property rights, or determined that their violation was worth the risk in light of the touted cost savings from switching to the cloned WPS software.

71. ~~62.~~The Re-Sellers also ignored these intellectual property rights, or determined that their violation was worth the risk in light of the touted cost savings and profits from selling the cloned WPS software.

DEFENDANTS' INFRINGEMENT OF THE COPYRIGHTS IN THE SAS SYSTEM AND THE SAS MANUALS

72. ~~63.~~The SAS System, in its various releases and iterations with updates, and including the SAS Learning Edition and the SAS Manuals, are subject to well over 100 Copyright Registrations, each duly registered with the United States Copyright Office.

73. ~~64.~~The code making up the SAS System is subject to copyright protection under United States law.

74. ~~65.~~In addition, many elements of the SAS System, separate from the source code, and often referred to under the law as the non-literal elements of the program, are also subject to copyright protection under United States law.

75. ~~66.~~Non-literal elements of the SAS System protected under copyright law include without limitation the SAS System's taxonomy, user interface, inputs, commands, PROC statements and compilation of PROC statements, SSO, and output designs. The taxonomy itself includes without limitation the overall system of organized names of without limitation Global statements, formats, informats, Data Step statements, Data Step functions, CALL routines, Data Set Options, PROCs, Library Engines and packages that are part of the SAS System.

76. ~~67.~~SAS has a vast range of options for the taxonomy, user interface, inputs, commands, PROC statements, SSO, and output designs of the SAS System. The ideas that are expressed in the SAS System could have been expressed in more than one way, and in fact, they could have been expressed in many alternate ways from the choices that SAS made in creating the SAS System.

77. ~~68.~~The non-literal elements SAS created and made part of the SAS System were not required so that users could write or use programs in the SAS Language, but instead were the product of creative choices by SAS. For example, PROC statements and the programs that the PROC statements call up are not chosen by users or part of a pre-existing language: instead, they are creatively chosen by SAS and then communicated to users of the SAS System or those programming in the SAS Language.

78. ~~69.~~In fact, PROC statements and the SAS System programs with which they are associated are updated and changed over time as a result of additional creative choices made by SAS.

79. ~~70.~~No idea or function required SAS to use the exact taxonomy it used in the SAS System.

80. ~~71.~~WPL could have developed a product to compete with SAS System without using the same taxonomy as the SAS System.

81. ~~72.~~No idea or function required SAS to use the exact user interface or input formats it used in the SAS System.

82. ~~73.~~WPL could have developed a product to compete with SAS System without using the same user interface or input formats as the SAS System.

83. ~~74.~~No idea or function required SAS to use the exact groupings of inputs and commands it used in the SAS System.

84. ~~75.~~WPL could have developed a product to compete with SAS System without using the same groupings of inputs and commands as the SAS System.

85. ~~76.~~No idea or function required SAS to use the exact PROC statements and compilation of PROC statements it used in the SAS System.

86. ~~77.~~WPL could have developed a product to compete with SAS System without using the same PROC statements and compilation of PROC statements as the SAS System.

87. ~~78.~~No idea or function required SAS to use the exact SSO it used in the SAS System.

88. ~~79.~~WPL could have developed a product to compete with SAS System without using the same SSO as the SAS System.

89. ~~80.~~No idea or function required SAS to use the exact output designs it used in the SAS System.

90. ~~81.~~WPL could have developed a product to compete with SAS System without using the same outputs or output design as the SAS System.

91. ~~82.~~WPL was not permitted to employ the same taxonomy, user interface, inputs, commands, PROC statements, SSO, and/or output designs chosen by SAS to create the SAS System.

92. ~~83.~~WPL was not permitted to employ the same taxonomy, user interface, inputs, commands, SSO, and/or output designs chosen by SAS to create the SAS System regardless of whether WPL thought its customers expected the same taxonomy, user interface, inputs, commands, SSO, and/or output designs in a product related to the SAS Language, and regardless of whether WPL thought using the same taxonomy, user interface, inputs, commands, SSO, and/or output designs in a product related to the SAS Language would make for a better product or have what the customers WPL was attempting to take from SAS would be looking for.

93. ~~84.~~Furthermore, the answer to the question of whether non-literal elements of a computer program are protectable or may be freely or fairly used by a competitor is based on whether or not the creator of the original work, here SAS, could have expressed those elements, at creation, in more than one way. It is not relevant whether the competitor thought it needed or even did need to copy those elements to make a better product or have what the customers WPL was attempting to take from SAS would be looking for.

94. ~~85.~~As described elsewhere in this Complaint, PROC statements and the compilation of PROC statements were created by SAS. They are not part of a pre-existing language simply incorporated into the SAS System. The PROC statements and the programs with which they are associated within the SAS System are further updated and changed over time by SAS and those changes and updates are then communicated to users of the SAS System and those who program in the SAS Language.

95. ~~86.~~WPL did not attempt to create a non-infringing competitor of the SAS System, but instead knowingly and intentionally attempted to duplicate the creative elements of the SAS System.

96. ~~87.~~WPL started creating a program copying as much of SAS's taxonomy, user interface, inputs, commands, PROC statements, SSO, and/or output designs as it could from working with the SAS System software and copying from the SAS Manuals.

97. ~~88.~~Copying from the SAS Manuals was common practice at WPL. For example, WPL Director, shareholder, and employee Tom Quarendon testified that "we read SAS manuals in connection with implementing WPS." WPL employee Kevin Weekes testified that he would "study the SAS online manuals" and help files "provided with the SAS Learning Edition." WPL Director, shareholder, and employee Peter Quarendon testified that over the years he had used "the Version 6 manuals, printed, the Version 8 manuals, online, and occasionally the Version 9.1 manuals, also online" in addition to "the Learning Edition interactive help as [his] preferred source for documents." WPL shareholder and employee Declan Vibert agreed that his "main source of reference was the SAS online documentation."

98. ~~89.~~WPL further fraudulently acquired many copies of the SAS Learning Edition so that it could run test after test and make modification after modification, each time coming closer until WPL felt as if it had finally copied the taxonomy, user interface, inputs, commands, SSO, and/or output designs in the SAS System.

99. ~~90.~~Indeed, WPL Director, shareholder, and employee Tom Quarendon has testified that his "regularly employed" method was "to run each SAS script through the SAS Learning Edition to observe the output produced by the SAS software in response to the script," then "run the same scripts through the WPS software to check that the WPS software produced the same output as the SAS software or fails gracefully where anticipated."

100. ~~91.~~WPL Director, shareholder, and employee Peter Quarendon similarly has confirmed that WPL repeatedly compared the output of WPS "to that produced when the same application is run through the SAS Learning Edition" to verify "that WPS was . . . generating the same output as the SAS software."

101. ~~92.~~WPL generated "golden results" based on the SAS output to make sure that once WPS output matches SAS output, WPS continues to match and does not deviate from SAS.

102. ~~93.~~For example, WPL Director, shareholder, and employee Peter Quarendon testified that the "golden results are taken from the WPL output which is achieved once the programmer of the relevant functionality of the WPS source code is satisfied that it is performing adequately and its behavior is sufficiently similar to that of the SAS software."

103. ~~94.~~WPL copied SAS's creative choices and expression because WPL believed that this expression was important to programmers and companies using programs in the SAS Language and that WPL would better be able to market a replacement product the more it was designed and looked like the SAS System.

104. ~~95.~~For example, WPL Director, shareholder, and employee Thomas Quarendon testified that WPL made its log files look the same as SAS's log files "because people are used to scanning SAS logs and expecting the information to come out in a certain way."

105. ~~96.~~In fact, WPL marketed its WPS program as being able to "compare exactly" to the SAS System, including the creative choices made by SAS with regards to taxonomy, user interface, inputs, commands, PROC Statements and SAS's compilation of PROC statements, SSO, and/or output designs.

106. ~~97.~~Even when, in testing, ~~WPL's~~ the WPS program worked as a competing system to the SAS System, if WPL found any inconsistency between WPS and the SAS System, for example, in the output design of the two products, WPL changed WPS to be exactly like the SAS System.

107. ~~98.~~At least one WPL executive and numerous WPL programmers have stated that reproducing the SAS System precisely was the only way to be viable as a competitor to SAS.

108. ~~99.~~WPL's chief software architect has stated that the enormous design and programming challenge WPL had was "producing an identical output to the output produced" by the SAS System.

109. ~~100.~~WPL contractor Steve Bagshaw similarly testified that WPL "need[ed] to ensure that . . . the report produced [in WPS] is identical to that produced by SAS."

110. ~~101.~~WPL Director, shareholder and employee Martin Jupp confirmed that "[a]ny deviations in the output from WPS as compared with . . . the SAS software is perceived by the end user to be a WPS bug."

111. ~~102.~~WPL shareholder and employee Declan Vibert likewise testified that "[i]t is WPL's policy to make the output of WPS identical to that produced by the SAS software whether [WPL] believe[s] the output to be technically accurate or not."

112. ~~103.~~As such, WPL's concern was not simply developing a competing product that performed similar functions to the SAS System, but rather to copy precisely the creative expression in the SAS System, including SAS's taxonomy, user interface, inputs, commands, PROCs and PROC statements, SSO, and/or output designs.

113. ~~104.~~Upon information and belief, WPL has gone so far as to copy the SAS System creative expression even when it believes that the creative expression reflects a bug or mistake in the SAS System, so that it can make sure that WPS is as exact a copy as possible.

114. ~~105.~~Upon information and belief, when SAS has updated or changed the SAS System and the SAS Manuals, including without limitation changes to its PROCs and PROC statements, WPL has attempted to duplicate those changes within WPS.

115. ~~106.~~In creating the taxonomy, user interface, inputs, commands, PROC statements and compilation of PROC statements, and SSO for the SAS System, SAS made thousands of creative choices.

116. ~~107.~~SAS has created hundreds of PROCs to allow users of the SAS Language a specific and creative way to analyze data resulting in a specific and creative output format. These can range from something small, but still creative such as PROC SORT, where SAS still makes many creative decisions about how to structure the PROC and its inputs, commands, defaults, and options and present data in a way that will be intuitive and helpful—and which takes 42 pages in the SAS Manuals to describe—to PROC GLM, a complex process used to build models to predict behavior—and which takes 196 pages in the SAS Manuals to describe.

117. ~~108.~~SAS could have chosen from widely varying creative expression to create the SAS System programs associated with the SAS System PROC statements right down to the naming of the PROC statements themselves and the overall taxonomy of the entire system.

118. ~~109.~~In fact, one of the creative choices made by SAS involves which PROC statements and programs are to be put into the SAS System at all. SAS has to decide which types of statistical analyses and processes should be included in the SAS System and what they should be named through the PROC statement. SAS also has to decide how broad or narrow to make PROCs, and what options are made available within each PROC.

119. ~~110.~~PROCs involve an initial statement followed by a series of related statements, normally resulting in a creative output design, each creatively chosen from among many choices to express the function needed by the user. The name of the PROC statement, such as GLMMOD or GLMSELECT is chosen by SAS and that choice is a creative one: nothing dictates the PROC statement, and collectively, the names of the many PROC statements represent a very compilation creatively and specifically selected by SAS.

120. ~~111.~~SAS designed its input formats, including the SAS System PROCs and their option names, syntax, default parameters, the interrelationships of the various parameters, and the user interface, by considering a wide range of alternative expressions for the statement names, command structures, syntax, and default parameters.

121. ~~112.~~SAS further designed its output design and formats in a creative manner, choosing from an almost infinite array of formats in an attempt to get to what the SAS designers thought were both aesthetically pleasing and easily understandable visuals to the user.

122. ~~113.~~SAS has an internal review process to review each PROC, the various PROC statements, the SSO, and all proposed output formats to make for the best user experience, including an attractive and appealing design.

123. ~~114.~~Such review is not simply to make sure the PROC works properly, but to review many different options of creative expression and choose among various proposals from the programmers as well as to authorize the details of exactly how the output will look.

124. ~~115.~~Further showing that the SAS System is a result of creative choices and not mandated by function, SAS has made updates to the SAS System and SAS Manuals and the various PROCs over time, wherein the SAS System performs the same statistical functions, but wherein the overall user experience, including the presentation, organization, and structure of the user interface and output designs have changed.

125. ~~116.~~As a result of the SAS System's creative choices used in conjunction with the user's program, users of the SAS System will obtain specific results unique to the SAS System and an output design showing those results that is the precise result of the creative expression and choices of the SAS System programmers at SAS.

126. ~~117.~~SAS also uses creative judgment in selecting, growing, organizing, and grouping the collection of PROC statements, options, and design outputs and tables over time, regularly adding new creative expression to the SAS System.

127. ~~118.~~WPL chose to mimic the creative expression and choices made by SAS exactly for the hundreds of PROCs.

128. ~~119.~~For example, here is a side-by-side comparison of what the SAS System output design looks like for a simple SAS program that invokes PROC MEANS and PROC SORT, along with the WPL output design:

~~S~~SAS

Summary of Flower Sales by Month 1
15:34 Friday, April 23, 2010

Month=5

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
Petunia	3	86.6666667	35.1188458	50.0000000	120.0000000
SnapDragon	3	113.3333333	41.6333200	80.0000000	160.0000000
Marigold	3	81.6666667	25.6580072	60.0000000	110.0000000

Month=6

Variable	N	Mean	Std Dev	Minimum	Maximum
Petunia	4	81.2500000	16.5201897	60.0000000	100.0000000
SnapDragon	4	97.5000000	47.8713554	60.0000000	160.0000000
Marigold	4	83.7500000	19.7378655	60.0000000	100.0000000

WPS

Summary of Flower Sales by Month 1
18:53 Sunday, April 25, 2010

Month=5

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
Petunia	3	86.6666667	35.1188458	50.0000000	120.0000000
SnapDragon	3	113.3333333	41.6333200	80.0000000	160.0000000
Marigold	3	81.6666667	25.6580072	60.0000000	110.0000000

Month=6

Variable	N	Mean	Std Dev	Minimum	Maximum
Petunia	4	81.2500000	16.5201897	60.0000000	100.0000000
SnapDragon	4	97.5000000	47.8713554	60.0000000	160.0000000
Marigold	4	83.7500000	19.7378655	60.0000000	100.0000000

129. ~~120.~~The example at Paragraph 128 is just one simple example of WPL's copying of SAS's creative expression in the SAS System. WPL's blatant copying of the SAS System

output design, as well as the taxonomy, user interface, inputs, commands, and SSO of the SAS System, is even more noticeable when viewing side-by-side comparisons of the output designs for more complex programs.

130. ~~121.~~For example and without limitation, the following side-by-side comparison of the SAS System output design and the ~~WPL System~~ WPS software output design for a SAS

program that invokes the more complex PROC UNIVARIATE and shows the identity in naming, taxonomy, user interface, and SSO:

SAS

The UNIVARIATE Procedure
Variable: Score

Moments

N	30	Sum Weights	30
Mean	74.6333333	Sum Observations	2239
Std Deviation	12.5848385	Variance	158.378161
Skewness	-0.3495061	Kurtosis	0.10385765
Uncorrected SS	171697	Corrected SS	4592.96667
Coeff Variation	16.8622222	Std Error Mean	2.29766665

Basic Statistical Measures

Location		Variability	
Mean	74.63333	Std Deviation	12.58484
Median	74.50000	Variance	158.37816
Mode	73.00000	Range	56.00000
		Interquartile Range	17.00000

Tests for Location: Mu0=0

Test		-Statistic-	-----p Value------	
Student's t	t	32.48223	Pr > |t|	<.0001
Sign	M	15	Pr >= |M|	<.0001
Signed Rank	S	232.5	Pr >= |S|	<.0001

Quantiles (Definition 5)

Quantile	Estimate
100% Max	100.0
99%	100.0
95%	92.0
90%	90.0
75% Q3	84.0
50% Median	74.5
25% Q1	67.0
10%	56.0
5%	54.0
1%	44.0
0% Min	44.0

Extreme Observations

----Lowest----		----Highest---	
Value	Obs	Value	Obs
44	6	87	21
54	24	90	5
56	20	90	13
56	1	92	9
64	28	100	23

WPS

Univariate Procedure
Variable:Score

Moments

N	30	Sum Weights	30
Mean	74.6333333	Sum Observations	2239
Std Deviation	12.5848385	Variance	158.378161
Skewness	-0.3495061	Kurtosis	0.10385765
Uncorrected SS	171697	Corrected SS	4592.96667
Coeff Variation	16.8622222	Std Error Mean	2.29766665

Basic Statistical Measures

Mean	74.6333333	Std Deviation	12.5848385
Median	74.5	Variance	158.378161
Mode	73	Range	56
		Interquartile Range	17

Tests for Location: Mu0=0

Var Name	Test	Testlab	Statistic	p Type	p Value	Mu0
Score	Student's t	t	32.482228595	Pr>|t|	<.0001	0
Score	Sign	M	15	Pr>|M|	<.0001	0
Score	Signed Rank	S	232.5	Pr>|S|	<.0001	0

Quantiles (definition 5)

Quantile	Estimate
100% Max	100
99%	100
95%	92
90%	90
75% Q3	84
50% Median	74.5
25% Q1	67
10%	56
5%	54
1%	44
0% Min	44

Extreme Observations

Value	Obs	Value	Obs
44	6	87	21
54	24	90	5
56	20	90	13
56	1	92	9
64	28	100	23

131. ~~122.~~ Other statistical software on the market performing the corresponding analysis (i.e., an idea) on identical data have markedly different output designs (i.e., the expression) from

the SAS System. These include without limitation the competing products, "R," "Minitab," and "SPSS."

132. ~~123.~~For example, this is the output of the open-source software, "R", performing the data analysis similar to that performed by the SAS System's PROC UNIVARIATE:

output_Scores08062015.txt

```
> # https://support.sas.com/documentation/cdl/en/procstat/63104/HTML/default/viewer.htm#procstat_univariate_sect026.htm
> setwd("U:/Others/smalljobs")
>
> scores = scan("Scores.dat")
Read 30 items
>
> ###########################################################################
> ################ Results produced by the default function ###############
> ###########################################################################
>
> summary(scores)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  44.00   67.50   74.50   74.63   84.00  100.00
```

133. ~~124.~~This is the output of IBM's competing product, SPSS, performing the data analysis similar to that performed by the SAS System's PROC UNIVARIATE:

Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Score	30	56.00	44.00	100.00	2239.00	74.6333	2.29767	12.58484	158.378	-.350	.427	.104	.833
Valid N (listwise)	30												

```
omsend.
```

134. ~~125.~~As another example of the numerous alternative expressions that software packages could use to express the same idea, each of various competing programs can perform a regression analysis with variance inflation errors. In SAS, the idea is expressed as follows:

```
PROC REG DATA=cement;
MODEL y = x1 x2 x3 x4/CLB;
RUN;
```

135. ~~126.~~The command name is expressed as "REG." The dataset is expressed as "Data=cement." The variables are expressed in "MODEL." The option of determining the variance inflation is represented by "NIP."

136. ~~127.~~In the third-party competitor product SPSS, the same idea is expressed differently:

```
REGRESSION
  /STATISTICS=DEFAULTS TOL
  /DEPENDENT y
  /METHOD=ENTER x1 x2 x3 x4.
```

137. ~~128.~~In SPSS, the command name is expressed as "REGRESSION." The subcommands are introduced by the symbol "/". The variables are expressed as "/DEPENDENT" and "/METHOD=ENTER".

138. ~~129.~~In R, the same idea and calculation are expressed differently from both SAS and SPSS:

```
reg <- lm(y~x1+x2+x3+x4)
```

139. ~~130.~~The WPS output format and design is also identical to the output in SAS. As another example, SAS provides the following expression of output from PROC REG:

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: y

Number of Observations Read	13
Number of Observations Used	13

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	2667.89944	666.97486	111.48	<.0001
Error	8	47.86364	5.98295		
Corrected Total	12	2715.76308			

Root MSE	2.44601	R-Square	0.9824
Dependent Mean	95.42308	Adj R-Sq	0.9736
Coeff Var	2.56333		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	1	62.40537	70.07096	0.89	0.3991	0
x1	1	1.55110	0.74477	2.08	0.0708	38.49621
x2	1	0.51017	0.72379	0.70	0.5009	254.42317
x3	1	0.10191	0.75471	0.14	0.8959	46.86839
x4	1	-0.14406	0.70905	-0.20	0.8441	282.51286

140. ~~131.~~ WPS uses the same output expression as SAS for PROC REG:

The WPS System

The REG Procedure

Model: MODEL1

Dependent variable: y

Number of Observations Read	13
Number of Observations Used	13

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	2667.89944	666.97486	111.48	<.0001
Error	8	47.86364	5.98295		
Corrected Total	12	2715.76308			

Root MSE	2.446008	R-Square	0.982376
Dependent Mean	95.423077	Adj R-Sq	0.973563
Coeff Var	2.563330		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	1	62.40537	70.07096	0.89	0.3991	0
x1	1	1.55110	0.74477	2.08	0.0708	38.49621
x2	1	0.51017	0.72379	0.70	0.5009	254.42317
x3	1	0.10191	0.75471	0.14	0.8959	46.86839
x4	1	-0.14406	0.70905	-0.20	0.8441	282.51286

141. ~~132.~~ However, the output in the competing product SPSS for a similar analysis is expressed differently than the output in SAS, using four different tables to show the output. The first output table shows:

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	X4, X3, X1, X2[b]	.	Enter

a. Dependent Variable: Y

b. All requested variables entered.

142. ~~133.~~The second SPSS output table shows:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.991[a]	.982	.974	2.44601

a. Predictors: (Constant), X4, X3, X1, X2

143. ~~134.~~ The third SPSS output table shows:

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2667.899	4	666.975	111.479	.000[b]
	Residual	47.864	8	5.983		
	Total	2715.763	12			

a. Dependent Variable: Y

b. Predictors: (Constant), X4, X3, X1, X2

144. ~~135.~~The fourth SPSS output table shows:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
		B	Std. Error	Beta			Tolerance
1	(Constant)	62.405	70.071		.891	.399	
	X1	1.551	.745	.607	2.083	.071	.026
	X2	.510	.724	.528	.705	.501	.004
	X3	.102	.755	.043	.135	.896	.021
	X4	-.144	.709	-.160	-.203	.844	.004

Coefficients[a]

Model		Collinearity Statistics
		VIF
1	(Constant)	
	X1	38.496
	X2	254.423
	X3	46.868
	X4	282.513

a. Dependent Variable: Y

145. ~~136.~~In the competing product R, the output for a similar analysis is expressed differently from both SAS and SPSS. The input and output expressions in R are shown below, with the input statements following the prompt ">" expression used in R:

```
> library(car)
> reg <- lm(y~x1+x2+x3+x4,data=cement)
> summary(reg)

Call:
lm(formula = y ~ x1 + x2 + x3 + x4, data = cement)

Residuals:
    Min      1Q  Median      3Q     Max
-3.2014 -1.6827  0.3119  1.3808  3.9664

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 65.38365   71.48184   0.915   0.3871
x1           1.52449    0.75977   2.007   0.0797 .
x2           0.47685    0.73836   0.646   0.5365
x3           0.07588    0.76991   0.099   0.9239
x4          -0.17406    0.72333  -0.241   0.8159
---
Signif. codes:  0 *** 0.001 ** 0.01 * 0.05 . 0.1   1

Residual standard error: 2.495 on 8 degrees of freedom
Multiple R-squared: 0.9815,     Adjusted R-squared: 0.9724
F-statistic: 106.6 on 4 and 8 DF,  p-value: 5.666e-07

> vif(reg)
       x1        x2        x3        x4
 38.49621 254.42317  46.86839 282.51286
```

146. ~~137.~~Here is another example showing both the "SAS Log" and the output of a sample SAS program side by side with the WPS Log and output, copying the same creative expression:

SAS

```
1    DATA sales;
2       INFILE 'c:\MyRawData\Flowers.dat';
3       INPUT CustomerID $ @9 SaleDate MMDDYY10. Petunia SnapDragon
4             Marigold;
5       Month = MONTH(SaleDate);

NOTE: The infile 'c:\MyRawData\Flowers.dat' is:
      File Name=c:\MyRawData\Flowers.dat,
      RECFM=V,LRECL=256

NOTE: 7 records were read from the infile 'c:\MyRawData\Flowers.dat'
      The minimum record length was 30.
      The maximum record length was 30.
NOTE: The data set WORK.SALES has 7 observations and 6 variables.
NOTE: DATA statement used (Total process time):
      real time           0.04 seconds
      cpu time            0.03 seconds


6    PROC SORT DATA = sales;
7       BY Month;
8    * Calculate means by Month for flower sales;

NOTE: There were 7 observations read from the data set WORK.SALES.
NOTE: The data set WORK.SALES has 7 observations and 6 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.43 seconds
      cpu time            0.02 seconds


9    PROC MEANS DATA = sales;
10      BY Month;
11      VAR Petunia SnapDragon Marigold;
12      TITLE 'Summary of Flower Sales by Month';
13   RUN;
```

```
                                Summary of Flower Sales by Month                1
                                                15:34 Friday, April 23, 2010

---------------------------------------- Month=5 ----------------------------------------

                              The MEANS Procedure

Variable      N            Mean         Std Dev         Minimum         Maximum
------------------------------------------------------------------------------
Petunia       3      86.6666667      35.1188458      50.0000000      120.0000000
SnapDragon    3     113.3333333      41.6333200      80.0000000      160.0000000
Marigold      3      81.6666667      25.6580072      60.0000000      110.0000000
------------------------------------------------------------------------------

---------------------------------------- Month=6 ----------------------------------------

Variable      N            Mean         Std Dev         Minimum         Maximum
------------------------------------------------------------------------------
Petunia       4      81.2500000      16.5201897      60.0000000      100.0000000
SnapDragon    4      97.5000000      47.8713554      60.0000000      160.0000000
Marigold      4      83.7500000      19.7378655      60.0000000      100.0000000
------------------------------------------------------------------------------
```

WPS

```
1        DATA sales;
2           INFILE 'c:\MyRawData\Flowers.dat';
3           INPUT CustomerID $ @9 SaleDate MMDDYY10. Petunia SnapDrag
4                 Marigold;
5           Month = MONTH(SaleDate);

NOTE: The file 'c:\MyRawData\Flowers.dat' is:
      File Name 'c:\MyRawData\Flowers.dat',
      Lrecl=256, Recfm=V

NOTE: 7 records were read from file 'c:\MyRawData\Flowers.dat'
      The minimum record length was 30
      The maximum record length was 30
NOTE: Data set "WORK.sales" has 7 observation(s) and 6 variable(s)
NOTE: The data step took :
      real time : 00:00:00.010
      cpu time  : 00:00:00.000


6        PROC SORT DATA = sales;
7           BY Month;
8        * Calculate means by Month for flower sales;
NOTE: Data set "WORK.sales" has 7 observation(s) and 6 variable(s)
NOTE: Procedure SORT step took :
      real time : 00:00:00.010
      cpu time  : 00:00:00.010


9        PROC MEANS DATA = sales;
10          BY Month;
11          VAR Petunia SnapDragon Marigold;
12          TITLE 'Summary of Flower Sales by Month';
13       RUN;
```

```
                                Summary of Flower Sales by Month                1
                                                18:53 Sunday, April 25, 2010

---------------------------------------- Month=5 ----------------------------------------

                              The MEANS Procedure
Variable      N            Mean         Std Dev         Minimum         Maximum
------------------------------------------------------------------------------
Petunia       3      86.6666667      35.1188458      50.0000000      120.0000000
SnapDragon    3     113.3333333      41.6333200      80.0000000      160.0000000
Marigold      3      81.6666667      25.6580072      60.0000000      110.0000000
------------------------------------------------------------------------------

---------------------------------------- Month=6 ----------------------------------------

Variable      N            Mean         Std Dev         Minimum         Maximum
------------------------------------------------------------------------------
Petunia       4      81.2500000      16.5201897      60.0000000      100.0000000
SnapDragon    4      97.5000000      47.8713554      60.0000000      160.0000000
Marigold      4      83.7500000      19.7378655      60.0000000      100.0000000
------------------------------------------------------------------------------
```

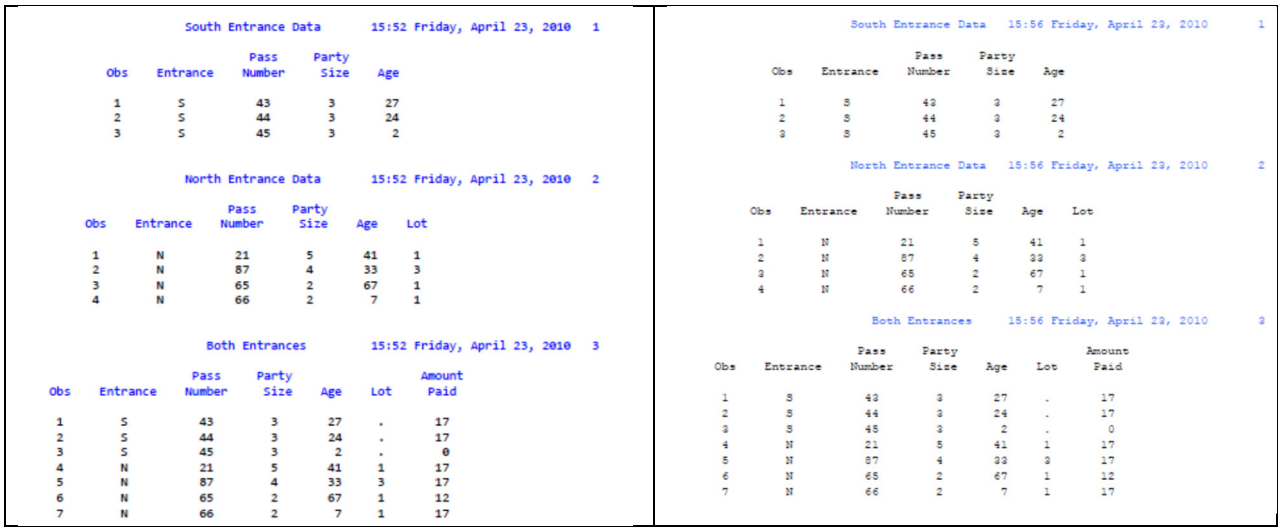
147. ~~138.~~Here is another example showing both the "SAS Log" and the output of another sample SAS program side by side with the WPS Log and output, copying the same creative expression:

SAS

```
1    DATA southentrance;
2       INFILE 'c:\MyRawData\South.dat';
3       INPUT Entrance $ PassNumber PartySize Age;

NOTE: The infile 'c:\MyRawData\South.dat' is:
      File Name=c:\MyRawData\South.dat,
      RECFM=V,LRECL=256

NOTE: 4 records were read from the infile 'c:\MyRawData\South.dat'.
      The minimum record length was 9.
      The maximum record length was 16.
NOTE: SAS went to a new line when INPUT statement reached past the end of a line.
NOTE: The data set WORK.SOUTHENTRANCE has 3 observations and 4 variables.
NOTE: DATA statement used (Total process time):
      real time           0.03 seconds
      cpu time            0.02 seconds


4    PROC PRINT DATA = southentrance;
5       TITLE 'South Entrance Data';
6

NOTE: There were 3 observations read from the data set WORK.SOUTHENTRANCE.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.03 seconds
      cpu time            0.03 seconds


7    DATA northentrance;
8       INFILE 'c:\MyRawData\North.dat';
9       INPUT Entrance $ PassNumber PartySize Age Lot;

NOTE: The infile 'c:\MyRawData\North.dat' is:
      File Name=c:\MyRawData\North.dat,
      RECFM=V,LRECL=256

NOTE: 4 records were read from the infile 'c:\MyRawData\North.dat'.
      The minimum record length was 11.
      The maximum record length was 12.
NOTE: The data set WORK.NORTHENTRANCE has 4 observations and 5 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds

       cpu time            0.01 seconds


10   PROC PRINT DATA = northentrance;
11      TITLE 'North Entrance Data';
12   * Create a data set, both, combining northentrance and southentrance;
13   * Create a variable, AmountPaid, based on value of variable Age;

NOTE: There were 4 observations read from the data set WORK.NORTHENTRANCE.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.00 seconds
      cpu time            0.00 seconds


14   DATA both;
15      SET southentrance northentrance;
16      IF Age = . THEN AmountPaid = .;
17         ELSE IF Age < 3  THEN AmountPaid = 0;
18         ELSE IF Age < 65 THEN AmountPaid = 17;
19         ELSE AmountPaid = 12;

NOTE: There were 3 observations read from the data set WORK.SOUTHENTRANCE.
NOTE: There were 4 observations read from the data set WORK.NORTHENTRANCE.
NOTE: The data set WORK.BOTH has 7 observations and 6 variables.
NOTE: DATA statement used (Total process time):
      real time           0.03 seconds
      cpu time            0.01 seconds


20   PROC PRINT DATA = both;
21      TITLE 'Both Entrances';
22   RUN;

NOTE: There were 7 observations read from the data set WORK.BOTH.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.00 seconds
      cpu time            0.00 seconds
```

WPS

```
1        DATA southentrance;
2           INFILE 'c:\MyRawData\South.dat';
3           INPUT Entrance $ PassNumber PartySize Age;

NOTE: The file 'c:\MyRawData\South.dat' is:
      File Name 'c:\MyRawData\South.dat',
      Lrecl=256, Recfm=V

NOTE: 4 records were read from file 'c:\MyRawData\South.dat'
      The minimum record length was 9
      The maximum record length was 16
NOTE: A new line was read when INPUT statement read past the end of a line
NOTE: Data set "WORK.southentrance" has 3 observation(s) and 4 variable(s)
NOTE: The data step took :
      real time : 00:00:00.270
      cpu time  : 00:00:00.010


4        PROC PRINT DATA = southentrance;
5           TITLE 'South Entrance Data';
NOTE: 3 observations were read from "WORK.southentrance"
NOTE: Procedure PRINT step took :
      real time : 00:00:00.000
      cpu time  : 00:00:00.000


7        DATA northentrance;
8           INFILE 'c:\MyRawData\North.dat';
9           INPUT Entrance $ PassNumber PartySize Age Lot;

NOTE: The file 'c:\MyRawData\North.dat' is:
      File Name 'c:\MyRawData\North.dat',
      Lrecl=256, Recfm=V

NOTE: 4 records were read from file 'c:\MyRawData\North.dat'
      The minimum record length was 11
      The maximum record length was 12

NOTE: Data set "WORK.northentrance" has 4 observation(s) and 5 variable(s)
NOTE: The data step took :
      real time : 00:00:00.000
      cpu time  : 00:00:00.000


10       PROC PRINT DATA = northentrance;
11          TITLE 'North Entrance Data';
12       * Create a data set, both, combining northentrance and southentrance;
13       * Create a variable, AmountPaid, based on value of variable Age;
NOTE: 4 observations were read from "WORK.northentrance"
NOTE: Procedure PRINT step took :
      real time : 00:00:00.000
      cpu time  : 00:00:00.000


14       DATA both;
15          SET southentrance northentrance;
16          IF Age = . THEN AmountPaid = .;
17             ELSE IF Age < 3  THEN AmountPaid = 0;
18             ELSE IF Age < 65 THEN AmountPaid = 17;
19             ELSE AmountPaid = 12;

NOTE: 3 observations were read from "WORK.southentrance"
NOTE: 4 observations were read from "WORK.northentrance"
NOTE: Data set "WORK.both" has 7 observation(s) and 6 variable(s)
NOTE: The data step took :
      real time : 00:00:00.000
      cpu time  : 00:00:00.000


20       PROC PRINT DATA = both;
21          TITLE 'Both Entrances';
22       RUN;
NOTE: 7 observations were read from "WORK.both"
NOTE: Procedure PRINT step took :
      real time : 00:00:00.000
      cpu time  : 00:00:00.000
```



South Entrance Data 15:52 Friday, April 23, 2010 1

Obs	Entrance	Pass Number	Party Size	Age
1	S	43	3	27
2	S	44	3	24
3	S	45	3	2

North Entrance Data 15:52 Friday, April 23, 2010 2

Obs	Entrance	Pass Number	Party Size	Age	Lot
1	N	21	5	41	1
2	N	87	4	33	3
3	N	65	2	67	1
4	N	66	2	7	1

Both Entrances 15:52 Friday, April 23, 2010 3

Obs	Entrance	Pass Number	Party Size	Age	Lot	Amount Paid
1	S	43	3	27	.	17
2	S	44	3	24	.	17
3	S	45	3	2	.	0
4	N	21	5	41	1	17
5	N	87	4	33	3	17
6	N	65	2	67	1	12
7	N	66	2	7	1	17

South Entrance Data 15:56 Friday, April 23, 2010 1

Obs	Entrance	Pass Number	Party Size	Age
1	S	43	3	27
2	S	44	3	24
3	S	45	3	2

North Entrance Data 15:56 Friday, April 23, 2010 2

Obs	Entrance	Pass Number	Party Size	Age	Lot
1	N	21	5	41	1
2	N	87	4	33	3
3	N	65	2	67	1
4	N	66	2	7	1

Both Entrances 15:56 Friday, April 23, 2010 3

Obs	Entrance	Pass Number	Party Size	Age	Lot	Amount Paid
1	S	43	3	27	.	17
2	S	44	3	24	.	17
3	S	45	3	2	.	0
4	N	21	5	41	1	17
5	N	87	4	33	3	17
6	N	65	2	67	1	12
7	N	66	2	7	1	17

148. ~~139.~~Here is another example showing both the "SAS Log" and the output of another sample SAS program side by side with the WPS Log and output, copying the same creative expression**:**

SAS	WPS
1 DATA class; 2 INFILE 'c:\MyRawData\Scores.dat'; 3 INPUT Score @@; NOTE: The infile 'c:\MyRawData\Scores.dat' is: File Name=c:\MyRawData\Scores.dat, RECFM=V,LRECL=256 NOTE: 3 records were read from the infile 'c:\MyRawData\Scores.dat'. The minimum record length was 29. The maximum record length was 30. NOTE: SAS went to a new line when INPUT statement reached past the end of a line. NOTE: The data set WORK.CLASS has 30 observations and 1 variables. NOTE: DATA statement used (Total process time): real time 0.03 seconds cpu time 0.03 seconds 4 PROC UNIVARIATE DATA = class; 5 VAR Score; 6 TITLE; 7 RUN; NOTE: PROCEDURE UNIVARIATE used (Total process time): real time 0.32 seconds cpu time 0.02 seconds	1 DATA class; 2 INFILE 'c:\MyRawData\Scores.dat'; 3 INPUT Score @@; NOTE: The file 'c:\MyRawData\Scores.dat' is: File Name 'c:\MyRawData\Scores.dat', Lrecl=256, Recfm=V NOTE: 3 records were read from file 'c:\MyRawData\Scores.dat' The minimum record length was 29 The maximum record length was 30 NOTE: A new line was read when INPUT statement read past the end of a line NOTE: Data set "WORK.class" has 30 observation(s) and 1 variable(s) NOTE: The data step took : real time : 00:00:00.270 cpu time : 00:00:00.000 4 PROC UNIVARIATE DATA = class; 5 VAR Score; 6 TITLE; 7 RUN; NOTE: 30 observations were read from "WORK.class" NOTE: Procedure UNIVARIATE step took : real time : 00:00:00.040 cpu time : 00:00:00.020

SAS

The UNIVARIATE Procedure
Variable: Score

Moments

N	30	Sum Weights	30
Mean	74.6333333	Sum Observations	2239
Std Deviation	12.5848385	Variance	158.378161
Skewness	-0.3495061	Kurtosis	0.10385765
Uncorrected SS	171697	Corrected SS	4592.96667
Coeff Variation	16.8622222	Std Error Mean	2.29766665

Basic Statistical Measures

Location		Variability	
Mean	74.63333	Std Deviation	12.58484
Median	74.50000	Variance	158.37816
Mode	73.00000	Range	56.00000
		Interquartile Range	17.00000

Tests for Location: Mu0=0

Test		-Statistic-	-----p Value------
Student's t	t	32.48223	Pr > |t| <.0001
Sign	M	15	Pr >= |M| <.0001
Signed Rank	S	232.5	Pr >= |S| <.0001

Quantiles (Definition 5)

Quantile	Estimate
100% Max	100.0
99%	100.0
95%	92.0
90%	90.0
75% Q3	84.0
50% Median	74.5
25% Q1	67.0
10%	56.0
5%	54.0
1%	44.0
0% Min	44.0

Extreme Observations

----Lowest----		----Highest---	
Value	Obs	Value	Obs
44	6	87	21
54	24	90	5
56	20	90	13
56	1	92	9
64	28	100	23

WPS

Univariate Procedure
Variable:Score

Moments

N	30	Sum Weights	30
Mean	74.6333333	Sum Observations	2239
Std Deviation	12.5848385	Variance	158.378161
Skewness	-0.3495061	Kurtosis	0.10385765
Uncorrected SS	171697	Corrected SS	4592.96667
Coeff Variation	16.8622222	Std Error Mean	2.29766665

Basic Statistical Measures

Mean	74.6333333	Std Deviation	12.5848385
Median	74.5	Variance	158.378161
Mode	73	Range	56
		Interquartile Range	17

Tests for Location: Mu0=0

Var Name	Test	Testlab	Statistic	p Type	p Value	Mu0
Score	Student's t	t	32.482228595	Pr>|t|	<.0001	0
Score	Sign	M	15	Pr>|M|	<.0001	0
Score	Signed Rank	S	232.5	Pr>|S|	<.0001	0

Quantiles (definition 5)

Quantile	Estimate
100% Max	100
99%	100
95%	92
90%	90
75% Q3	84
50% Median	74.5
25% Q1	67
10%	56
5%	54
1%	44
0% Min	44

Extreme Observations

Value	Obs	Value	Obs
44	6	87	21
54	24	90	5
56	20	90	13
56	1	92	9
64	28	100	23

149. ~~140.~~The examples shown above are just a few of many possible examples. Literally thousands of SAS creative choices resulting in highly creative expression were copied by WPL in creating its knock-off clone of the SAS System.

150. ~~141.~~These creative choices include without limitation, SAS's taxonomy and input formats (e.g., the SAS PROCs, PROC statements, routines, statements, formats, procedures, and

options). There were more than 200 pages of spreadsheets on WPL's own website listing (and essentially marketing) how the variously named features and taxonomy of the SAS System were copied into WPS.

151. ~~142.~~These creative choices also include without limitation the extensive SSO chosen by SAS. There were many combinations of options available to SAS employees, who put together the precise creative expression that is the SAS System SSO.

152. ~~143.~~In addition, these creative choices include the plethora of SAS System output designs and formats (e.g., the screen displays, presentation, formatting, colors, organization and labeling of the analysis and output generated by the SAS System for each procedure and interaction with users of the program).

153. ~~144.~~Even if any individual elements of the taxonomy, user interface, inputs, commands, PROC statements and any specific SSO, and/or output designs chosen by SAS could be found to be not copyrightable when viewed in isolation, SAS's creative selection and arrangement of any such non-copyrightable elements would be a copyrightable compilation protected by the United States Copyright Act.

154. ~~145.~~Furthermore, a comparison between the SAS System and the knock-off clone WPS done after the removal of non-copyrightable elements, if any, under an abstraction-filtration-comparison test will show that WPL copied the copyrightable non-literal elements of the SAS System precisely.

PATENTS-IN-SUIT

155. ~~146.~~WPL has violated SAS's patent rights via its making, using, offering for sale, selling, and importation of WPS software. Furthermore, on information and belief, Yum and Pizza Hut have violated SAS's patent rights by using WPS software.

156. ~~147.~~On January 30, 2007, the United States Patent and Trademark Office duly and legally issued United States Patent No. 7,170,519, entitled "Computer-Implemented System and Method for Generating Data Graphical Displays," to plaintiff SAS. SAS is the assignee of and the

rightful owner of the '519 Patent, a true copy of which is attached hereto as Exhibit 1. The '519 Patent claims priority to a provisional patent application filed on March 29, 2002.

157. ~~148.~~Claim 1 of the '519 Patent describes and claims with specificity how one aspect of the invention may be performed:

> A computer-implemented method for generating data graphical displays, comprising the steps of:
>
> receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;
>
> retrieving graph style data items from a data file, said graph style data items containing display characteristics to be used in displaying the data in a non-textual format;
>
> and accessing of the graph style data items in order to display non-textual formatted output based upon the graph style data items;
>
> said graph style data items containing graph style metadata that have descriptors specifying what statistical roles different data variables have within the data;
>
> wherein the specified statistical roles are used to define display characteristics for the data;
>
> wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.

158. ~~149.~~On November 4, 2008 the United States Patent and Trademark Office duly and legally issued United States Patent No. 7,447,686, entitled "Computer-Implemented System and Method for Handling Database Statements," to plaintiff SAS. SAS is the assignee of and the rightful owner of the '686 Patent, a true copy of which is attached hereto as Exhibit 2. The '686 Patent was filed on November 22, 2002.

159. ~~150.~~Claim 1 of the ’686 Patent recites:

A computer-implemented method for handling a database statement from a first database system, comprising the steps of:

receiving a first fourth-generation language database statement from the first database system, wherein the first database statement is formatted according to the first database system's query language format;

accessing database functional language difference data, wherein the database functional language difference data indicates a format that contains at least one database functional statement difference from the first database system's query language format;

generating a second fourth-generation language database statement that is used within a second database system, wherein the second database statement is generated based upon the first database statement and upon the accessed database functional language difference data, wherein the second database statement is compatible with the second database system's query language format;

wherein a tree representative of the syntax of the database language used within the first database system and of metadata associated with the first database system is used in generating the second database statement;

wherein the tree contains logical pieces parsed from the first fourth-generation language database statement;

using a plurality of component software objects to textualize the logical pieces contained in the tree, wherein textualizing a logical piece includes generating fourth-generation database language text;

wherein a first component software object is associated with a first logical piece contained in the tree;

wherein the first component software object is associated with a first method to textualize, into fourth-generation database language text, the first component software object's associated logical piece that is contained in the tree;

using a plurality of software drivers to textualize logical pieces into fourth-generation database language text;

wherein a first software driver textualizes through a second method a logical piece into fourth-generation database language text that is compatible with the second database system's query language format;

wherein a second software driver textualizes through a third method a logical piece into fourth-generation database language text that is compatible with a third database system's query language format;

switching association of the first component software object from the first method to the second method for fourth-generation database language textualization;

wherein because of the switching of the association of the first component software object, the first component software object textualizes fourth-generation database language text that is compatible with the second database system's query language format and that is not compatible with the first database system's query language format.

160. ~~151.~~On July 30, 2013 the United States Patent and Trademark Office duly and legally issued United States Patent No. 8,498,996, entitled "Computer-Implemented Method and System for Handling and Transforming Database Queries in a Fourth Generation Language," to

plaintiff SAS. SAS is the assignee of and the rightful owner of the '996 Patent, a true copy of which is attached hereto as Exhibit 3. The '996 Patent was filed on November 3, 2008.

161. ~~152.~~Claim 1 of the '996 Patent recites:

A computer-implemented method for processing a query, comprising:

receiving a native syntax query requesting data stored in a non-native database that uses a non-native syntax, wherein the query is received at an application that is separate from the non-native database, wherein the query requests that the data be retrieved from the non-native database, wherein the query requests that a processing operation be performed on the requested data by the application, wherein the query includes one or more expressions, and wherein one or more of the expressions includes one or more functions;

parsing the native syntax query, wherein parsing includes identifying a function within an expression that cannot be processed by the non-native database, wherein the function specifies the processing operation to be performed on the requested data by the application, wherein a plurality of labels are associated with the function and the expression, and wherein labels include constant labels and format labels;

analyzing the function and the expression to determine a context of the function within the expression, wherein the context describes how the function is used within the expression;

generating, using one or more data processors, a final expression query by obtaining a control string from an internal table for each of the plurality of labels associated with the function and the expression, wherein label modifiers are applied to format labels;

transforming the native syntax query into an equivalent non-native syntax query, wherein transforming includes parsing and inserting the final expression query into the equivalent non-native syntax query using the function, the expression, and the context to translate the function and the expression into multiple functions and multiple expressions that are configured for processing by a non-native database system;

transmitting the equivalent non-native syntax query to a non-native database system to generate results and to perform the processing operation on the generated results;

receiving processed results from the non-native database system;

and transmitting the processed results to a client application.

162. ~~153.~~On July 19, 2005 the United States Patent and Trademark Office duly and legally issued United States Patent No. 6,920,458, entitled "Model Repository," to plaintiff SAS. SAS is the assignee of and the rightful owner of the '458 Patent, a true copy of which is attached hereto as Exhibit 6. The '458 Patent was filed on September 22, 2000.

163. ~~154.~~Claim 61 of the '458 patent recites:

A model repository system, comprising:

a data store for storing a plurality of data records;

a data mining application for analyzing the data records and for generating a plurality of data models; and

a model repository for storing the generated data models, wherein the model repository includes one or more index structures containing a plurality of attributes associated with the data models;

a model repository facility for exporting the generated data models to the model repository;

a first configuration data store that stores information to be used by the model repository facility in exporting the generated data models to the model repository; and

a second configuration data store that stores information to be used by the model repository system in building the one or more indexes in the model repository.

THE INVENTIONS CLAIMED IN THE PATENTS-IN-SUIT ARE NOT WELL-UNDERSTOOD, ROUTINE, OR CONVENTIONAL

The '519 Patent

164. ~~155.~~The '519 Patent claims a method of generating graphical displays based on data items and metadata embedded within a data file. At the time the '519 Patent was filed, this method of generating graphical displays was not conventionally practiced.

165. ~~156.~~The inventors of the '519 Patent recognized that "[g]raphical depictions of computer-generated data aid users in their analysis and understanding of the data." '519 Patent col. 1:26–27. While "[m]any types of software applications can display data graphs," "the styles that define the appearance of graphical displays were traditionally tightly coupled with the software application generating the graphs." *Id*. at 1:27–31. This feature created problems for users. "Difficulties arose during attempts to use graphical styles defined in one software application in a different software application." *Id*. at 1:31–33. Similarly, "the graphical styles defined within a software application usually were limited to fairly small sets of configurable items, such as background colors." *Id*. at 1:33–36.

166. ~~157.~~The inventors of the '519 Patent appreciated the benefit of making graph styles widely compatible across software programs. With greater compatibility, users could more easily generate graphical displays and transfer them among software programs. Greater compatibility also gave users a broader array of configurable items to use in altering graphical displays. The '519 Patent specifically explained how the invention's unconventional method led to these tangible improvements to the prior art.

167. ~~158.~~Figure 3 highlights some of the '519 Patent's key improvements. In this embodiment, "[t]he graph styles data structure contains graph styles format data and graph styles metadata." *Id*. at 2:46–47. "The format data may include graph font characteristics, graph backgrounds, [or] graph color schemes," and may be "at varying levels of detail." *Id*. at 2:47–50. The format data also may be coded to "define styles to be used by all components on a graph" or to "define styles on a per graphical component level." *Id*. at 2:50–55. These unconventional features of the invention overcame the "fairly small sets of configurable items" that were offered to users in the prior art when editing graphical displays. *Id*. at 1:34–35.

168. ~~159.~~The '519 Patent claims likewise recite unconventional methods that improve the underlying computers' ability to display graphical items. For example, claim 1 recites a method comprising "receiving data to be displayed in a non-textual format" and "retrieving graph style data items from a data file." *Id*. at 10:19–22. The "graph style data items contain[] graph style metadata that have descriptors specifying what statistical roles different data variables have within the data." *Id*. at 10:29–31. The metadata and statistical roles "define display characteristics for the data." *Id*. at 10:33–34. Because the metadata is embedded within the graph style data items, the invention overcomes several problems that plagued the prior art, such as the inability to transfer graphical styles among software programs and offer users the full range of configurable items.

169. ~~160.~~The '519 Patent's solutions are rooted in computer technology and overcome problems specifically arising in the realm of electronic graphical displays. This technical context is reflected in the Patent's claims. The claims recite graph style metadata and statistical roles that contain instructions for displaying computer-generated images. A person of ordinary skill in the art at the time of the '519 Patent would not have understood that the invention could be performed solely in the human mind or by using pen and paper. A pen-and-paper imitation ignores the stated purpose of the invention and the problems the Patent specifically solved.

The '686 Patent

170. ~~161.~~Like the '519 Patent, the '686 Patent claims an unconventional solution to a uniquely technical problem. The invention in the '686 Patent covers a new method for handling database queries from a first system that may utilize a different language format than the database being queried. This method of accessing databases utilizing different language formats was not conventionally practiced in 2002, when the '686 Patent was filed.

171. ~~162.~~The inventor of the '686 Patent explained that "[d]ata access across different database platforms proves difficult due to the platforms using varying database commands." '686 Patent 1:13–14. Most databases accept some form of structured query language (SQL) "which is based on a well-documented ANSI standard." *Id*. at 1:15-16. However, "most database systems, such as those from Oracle, Sybase, Business Objects, SAS, or Brio, implement a superset of the ANSI standard." *Id*. at 1:16-19. It is the differences between these supersets that provide obstacles in cross-platform database operations. *Id*. at 1:19-20.

172. ~~163.~~As such, the prior art was beset with incompatibility difficulties between the various database languages and variants between supersets of those database languages based on the ANSI standard. *See id*. at 1:13-20. The '686 Patent's invention was specifically designed to overcome such difficulties and others by providing a computer-implemented method for converting a "native database statement into a variety of third party database dialects through a textualization process." *Id*. at 2:20–21. For example, "if a native database system [] uses an outer join syntax to be specified in an SQL query statement [] that is different from what a third party database system [] uses, then the textualization process 50 creates based upon the specific textualizations [] a processed SQL command [] for the third party database system 42 that employs the third party's outer join syntax." *Id*. at 2:27-33.

173. ~~164.~~The '686 Patent inventor recognized the advantage of allowing a first database system to access (and process) the data stored in second database that utilizes a differing or incompatible language format. With data being stored in multiple different types of databases and the exponential growth of the internet and computing technology, the need had grown for software applications to access and exchange more data than ever before. The patented method

"overcomes" the disadvantages in the prior art and enhances computers' efficiency in accessing data across normally incompatible database formats. *See id*. at 1:13–30.

174. ~~165.~~Figure 2 demonstrates the advantages of the claimed invention. In this embodiment, "an SQL tree 60 is used by the textualization process 50 to process an SQL statement" in the native database system's language format. *Id*. at 3:1-2. The SQL tree "represents the syntax of a native database's SQL statement [] and its related metadata (e.g., table names, column names, etc.)." *Id*. at 3:3-5. The tree may contain a "hierarchical arrangement of nodes representative of the SQL syntax and metadata to be processed." *Id*. at 3:5-7. As an illustration:

> a database system from SAS Institute Inc. has an SQL language which has differences from other vendor's SQL. The textualization process 50 allows a SAS SQL statement to be converted into a third party vendor-specific SQL in order to successfully submit a table request to the third party's relational database system (RDBMS). This is accomplished by representing the SAS SQL statement as an SQL tree 60. The SQL tree 60 is passed to the textualization process 50 to convert the tree 60 into the text of the third party vendor-specific SQL query, taking into account any DBMS-specific SQL. The textualization operation happens in this example just prior to the call to a prepare( ) or executeDirect( ) routine. These standardized routines then pass the SQL query to an RDBMS in the form of text. It is noted that in an SQL-centric table services model, an SQL query typically gets passed to either the prepare( ) or executeDirect( ) routines (depending on context). A call to either of these routines, therefore, constitutes a request to an RDBMS.

Id. at 3:19-36.

175. ~~166.~~The claims in the '686 Patent underscore the invention's unconventional approach to converting database queries. Claim 1 recites thirteen separate elements specifying exactly how a database statement from a first database system is made to be compatible with a second database system's query language format. *See id*. at 9:61-10:50. Among other limitations, the claim's specific use of textualization methods and use of a tree representative of the syntax of the database language used within the first database system helps to overcome the incompatibility problem that afflicted the prior art.

176. ~~167.~~The '686 Patent's solutions are rooted in computer technology and database access. All of the claims are comprised of at least thirteen various elements that specify how one

can overcome the incompatibility problem in the prior art. These claimed elements spotlight the Patent's focus on a narrow and specific technical problem that arose when accessing incompatible database formats from differing vendors. The claims of the '686 Patent are directed toward a specific method of transformation of database queries (as evidenced by claim 1's thirteen separate limitations). The claims do not preempt all methods of transforming database queries into a differing format. The invention, at bottom, improves a database's underlying performance by allowing it to access and process data stored in a separate database with an incompatible format.

The '996 Patent

177. ~~168.~~Like the '686 Patent, the '996 Patent claims an unconventional solution to a uniquely technical problem. The invention in the '996 Patent covers a new method for generating a query in a first fourth generation language at a native system to a non-native database which is capable of processing queries in a separate fourth generation language. The query is initiated by a client in a first fourth generation language which is analyzed to determine if it can be processed by a non-native system capable of processing queries in a second fourth generation language. '996 Patent at Abstract. Non-standard syntax representative of a function and the query that cannot be evaluated by the non-native database system is identified. *Id*. If the syntax is discovered, the query is transformed through the use of formats or through an algorithm process into an equivalent query expression that can be processed by the database system. *Id*. This method of accessing databases utilizing different language formats was not used in the prior art.

178. ~~169.~~The inventors of the '996 Patent explained that "[a] typical database access environment often requires that proprietary client applications interact effectively with databases." '996 Patent 1:14–16. As with the '686 Patent, the inventors of the '996 Patent note that "[w]hen retrieving data from such databases, such client applications require query engine formulated queries, typically in structured query language ("SQL") being passed down and processed by the database for performance." *Id*. at 1:16-19. Notably, "in order for the SQL query to operate effectively, it must be free of any specific client application syntax that the databases do not support." *Id*. at 1:20-22.

179. ~~170.~~The '996 Patent recognizes that a premium is placed on speed and the reduction of processing cycles. It is thus desirable to issue queries which result in as little data being returned as possible, otherwise too much data could be returned to the client side which results in an extensive amount of data storage, network communication time, congestion, processing and expense. *See id*. at 1:23-28.

180. ~~171.~~The inventors of the '996 Patent noted various problems associated with the prior art. Specifically, one prior art method analyzed an SQL/on-line analytical programming (OLAP) window aggregates that are not supported by a target system and transforming those SQL/OLAP windowed aggregates into equivalent standard aggregate functions that are supported by the target database system. *Id*. at 1:29-34. That prior art method "addresses group query transformations in a database system that does not support the SQL-99 standard. Thus, the solution only applies to a specific standard and does not provide an effective general solution for a fourth generation language environment between a native system and a non-native database system for processing queries." *Id*. at 1:37-41.

181. ~~172.~~One purpose of the '996 Patent was "to prevent or reduce the amount of local processing required to process a query, which is provided in accordance with the computer-implemented method and system described herein." *Id*. at 1:51-54.

182. ~~173.~~Figure 3 illustrates client computers 103 and 105 seeking to invoke a SAS procedure known as PROC SQL. "PROC SQL includes a query engine" and the "application relies on SQL queries being passed down and processed by the database system 109." *Id*. at 3:28-30. The queried database system 109 may be available from companies such as Oracle, IBM, Teradata, and others. "The data is imported into the PROC SQL processing environment where the formatting work for the put( ) function" is performed. *Id*. at 3:53-55. An SQL query fetches the data into the client specific environment 103, 105 and 107 to operate on the data. *Id*. at 3:55-57. "When table sizes are large, the performance of fetching all data measured in response time degrades" which "becomes a greater problem as 4GL product integration with third party databases expand and the popularity of using formatted data increases." *Id*. at 3:58-62. A result of these

problems in the prior art is "more and more of the queries are not passed to the database." *Id*. at 3:62-63. To solve these problems, the patents method "allows transformation of many functions such as the put( ) function into an alternate SQL syntax which may be passed and operated on by the database system 109." *Id*. at 63-67.

183. ~~174.~~The flowcharts of Figures 5-13 are various embodiments of how these functions are transformed into syntax which may be passed on an operated on by the target database system.

184. ~~175.~~The claims in the '996 Patent underscore the invention's specific and unconventional approach to transforming database queries. Claim 1 recites seven separate elements specifying exactly how a query from a first computer is transformed into equivalent non-native syntax query to a non-native database system to generate results and to perform the processing operation on the generated results. *See id*. at 17:44-18-21. Claim 1 discloses a very specific method of the claimed transformation and data retrieval that helps to overcome the problems that afflicted the prior art.

185. ~~176.~~The '996 Patent's solutions are rooted in computer technology and database access. The claims are comprised of at least seven various elements that specify how one can overcome the problems in the prior art. These claimed elements spotlight the '996 Patent's focus on a narrow and specific technical problem that arose when accessing incompatible database formats from differing vendors. The claims of the '996 Patent are directed toward a specific method of transformation of database queries and data retrieval. The claims do not foreclose all methods of transforming database queries into a differing format and retrieving data. The invention, at bottom, prevents or reduces the amount of local processing required to process a query to a database with an incompatible format. This method of transforming database queries was not conventionally practiced in 2008, when the '996 Patent was filed.

The '458 Patent

186. ~~177.~~The '458 Patent claims an unconventional solution to a uniquely technical problem. The invention in the '458 Patent covers a model repository system for creating, storing,

organizing, locating, and managing a plurality of data models. The model repository "may be organized into a plurality of levels, including a project level, a diagram level, and a model level." '458 Patent at Abstract. Associated with the model repository is a model repository facility that is "preferably integrated into the data mining application and enables operations, such as the exportation of useful models to the model repository." *Id*. The model repository may also include one or more index data structures for storing attributes of the models. *Id*. These indexes may include an index "that contains attributes of all the models stored in the model repository," and others "that contain the attributes of a particular sub-set of the models stored in the model repository." *Id*. This system of creating, storing, organizing, locating, and managing a plurality of data models was not used in the prior art.

187. ~~178.~~The inventors of the '458 Patent explained "with the explosion of Internet-related traffic, business enterprises are generating volumes of data that are one or more orders of magnitude larger than before." '458 Patent 1:22–25. This increased data resulted in the development of data mining software that can "search through the large volumes of data stored in the data warehouse and can identify patterns in the data using a variety of pattern-finding algorithms." *Id*. at 1:32-35. The patterns identified by the algorithms "are then used by the business analyst in order to make business recommendations." *Id*. at 1:35-36. "When the data mining tool is executed according to a particular specification, it generates a resulting analysis that is termed a model." *Id*. at 1:47-49. These models accumulate within a particular company and various models may not be up-to-date, may be based on different input data, may be generated by different individuals within a company, may be based on different data sampling techniques, etc. *Id*. at 1:55-2:3. "There is no straightforward way for people who want to use models to know which ones (other than their own) are available and to find the one(s) appropriate for a given purpose. Tracking down or duplicating the generation of appropriate model(s) requires extensive human resources and time." *Id*. at 2:3-8.

188. ~~179.~~The '458 Patent recognizes that a premium is placed on organization and the effective management of multiple models. It was thus desirable to create the claimed system and

method for creating, storing, organizing, locating and managing a plurality of models generated by a data mining application or other application. *See id*. at 2:9-36.

189. ~~180.~~The claims in the '458 Patent underscore the invention's specific and unconventional approach to managing models in the model repository system. Claim 61 recites multiple `elements specifying exactly what the claimed model repository system contains, and how it helps to overcome the problems associated with the multiple models created within an organization by the known data mining software.

190. ~~181.~~The '458 Patent's solutions are rooted in computer technology and data mining applications. The claims are comprised of various elements that specify a system that can solve problems raised in the technological field of data mining and modeling. These claimed elements spotlight the '458 Patent's focus on a technical problem that arose when data mining software was used to generate multiple models within an enterprise. The claims do not foreclose all systems and methods of managing multiple models within a model repository. This model repository system was not conventionally practiced in 2000, when the '458 Patent was filed.

~~WPS'S~~ WPL'S AND D2S'S PRE-SUIT KNOWLEDGE OF THE PATENTS-IN-SUIT AND THE COPYING OF SAS'S INVENTIONS

191. ~~182.~~WPL's efforts to create a copy of the SAS System did not only involve the illegal, fraudulent, and deceptive access to and examination of the SAS Learning Edition and the SAS System. WPL and its employees also monitored papers published by SAS employees and inventors relating to how specific functionality within the SAS System operates and used the disclosure of such papers to copy the functionality of the SAS System into WPS.

192. ~~183.~~WPL's pervasive copying and monitoring of SAS's papers and disclosures indicates that WPL and D2S knew of or should have known of SAS's patent rights relating to the SAS System, including the Patents-in-Suit.

193. ~~184.~~In a prior litigation, WPL~~'s~~ and D2S Director Oliver Robinson disclosed that he was in possession of a document described as "Extract from SAS Paper, untitled (front page missing)," (the "SAS Paper Extract") attached hereto as Exhibit 4.

194. ~~185.~~In connection with a witness statement in prior litigation, Mr. Robinson also disclosed a schedule of work for the development of WPS which include the following excerpt indicating that between April and June 2009, WPL was adding the PROC SQL language and described the work as "Implicit passthrough code added – this textualises portions of the code that can be pass [sic.] through to a database in order to reduce the amount of data being returned":

01/04/2009	10/06/2009	PROC SQL	PROC SQL language addition	Implicit passthrough code added - this textualises portions of code that can be pass through to a database in order to reduce the amount of data being returned.

195. ~~186.~~In that same lawsuit, WPL's Ben Scurr testified that WPL improved the PROC SQL function by taking such functionality from various SAS papers. Mr. Scurr testified:

> During April 2009 to June 2009, I undertook further work to improve the performance of PROC SQL when it is reading or writing data to or from a third party database e.g. Microsoft SQL Server. This is accomplished by evaluating how much of the query plan can be handed off to the database to execute rather than WPS doing it. This was another optimization effort, and compromised a large raft of work from published SAS papers on what is known as implicit Passthrough. A list of the papers referred to during this work is exhibited at tab 2 of BDS1.

196. ~~187.~~Tab 2 of BDS1 included the following SAS paper, "New SAS® Performance Optimizations to Enhance Your SAS® Client and Solution Access to the Database" (the "Whitcher Paper"). A copy of this paper is attached as Exhibit 5. Notably the Whitcher Paper is a nearly identical version of the "SAS Paper Extract" of Exhibit 4 with the front page intact.

197. ~~188.~~Both the SAS Paper Extract and the Whitcher Paper were authored by Mike Whitcher, the first named inventor of the '996 Patent.

198. ~~189.~~The SAS Paper Extract and the Whitcher Paper both disclose PROC SQL database translation functionality and implicit passthrough that is the subject of the '996 Patent. In fact, many of the examples and tables in the '996 Patent are disclosed in both the SAS Paper Extract and the Whitcher Paper. Compare '996 Patent at 10:55-65 with SAS Paper Extract and Whitcher Paper at 2; compare "Supported unPUT Formats & Widths" table in '996 Patent at 8:17-9:18 with SAS Paper Extract and Whitcher Paper at 5. Further, both the SAS Paper Extract and

the Whitcher Paper extend acknowledgements to "Rick Langston and Howard Plemmons for their work on unPUT technology." SAS Paper Extract and Whitcher Paper at 15. Notably, Rick Langston and Howard Plemmons are the other two named inventors on the '996 Patent.

199. ~~190.~~During a prior trial with much of WPL's (and later D2S's) management in attendance, SAS employee and co-inventor of the '996 Patent, Rick Langston, testified that he held two patents and that the second "has to do with something we call unPUT, and that is the undoing of format in order to make SQL processing – Structure Querying Language processing faster and the underlying technology for that."

200. ~~191.~~WPL clearly copied SAS's invention claimed and disclosed in the '996 Patent.

201. ~~192.~~WPL was monitoring papers and publications by SAS employees relating to the operation of various SAS System functionality, including the technologies disclosed and claimed in the Patents-in-Suit. On information and belief, WPL (and therefore D2S) knew or should have known of the Patents-in-Suit and its infringement thereof as early as the initial development of WPS. At the very least, WPL (and therefore D2S) was aware of the Patent-in-Suit and its infringement thereof at least as early as the prior trial where the existence of SAS patent was specifically disclosed.

INFRINGEMENT OF THE '519 PATENT

202. ~~193.~~On information and belief, ~~Defendant WPL infringes~~ Defendants WPL and D2S infringe at least Claims 1 and 34 of the '519 Patent because WPL provides software and services (WPS) which embodies the claims of the '519 Patent.

203. ~~194.~~For example, Claim 1 is directed to a method for generating data graphical displays.

204. ~~195.~~On information and belief, using certain features of WPS consists of a method for generating data graphical displays.

205. ~~196.~~On further information and belief, WPS receives data in a non-textual format that is indicative of a plurality of variables.

206. ~~197.~~On further information and belief, WPS retrieves graph style data items from a data file.

207. ~~198.~~On further information and belief, WPS consists of graph style data items that contain display characteristics to be used in displaying the data in a non-textual format.

208. ~~199.~~On further information and belief, WPS accesses the graph style data items in order to display non-textual formatted outputs that are based upon the graph style data items.

209. ~~200.~~On further information and belief, the graph style data items within WPS contain graph style metadata that have descriptors specifying what statistical roles different data variables have within the data.

210. ~~201.~~On further information and belief, WPS contains specified statistical roles which are used to define display characteristics for the data.

211. ~~202.~~On further information and belief, WPS displays data in a non-textual format in accordance with the graph style data items and the graph style metadata.

212. ~~203.~~Claim 34 is directed to an apparatus for generating graphical displays based upon data.

213. ~~204.~~On information and belief, WPS generates graphical displays based upon data.

214. ~~205.~~On further information and belief, WPS contains a graph generator module that receives data to be displayed in a non-textual format with the received data being indicative of a plurality of variables.

215. ~~206.~~On further information and belief, WPS contains a graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format.

216. ~~207.~~On further information and belief, the graph style data structures in WPS contain graph style metadata that defines display characteristics for data through the metadata associating at least two of the variables with statistical roles.

217. ~~208.~~On further information and belief, WPS's graph generator modules have data access to the graph style data structure.

218. ~~209.~~On further information and belief, WPS's graph generator modules generate at least one graphical output based upon the received data with the graphical output being generated in accordance with the defined data characteristics of the graph styles data.

219. ~~210.~~Accordingly, WPL has practiced, is practicing, and/or will continue to practice the method disclosed in Claim 1.

220. ~~211.~~Similarly, customers of WPL and/or D2S that use or have used this functionality of the WPS software have practiced and/or are practicing the method disclosed in Claim 1. On information and belief, Defendants Yum and Pizza Hut have practiced and/or are practicing the method disclosed in Claim 1 by utilizing the WPS software.

221. ~~212.~~WPL is making, using, selling, offering for sale, and/or importing the apparatus disclosed in Claim 34 and, thus, has infringed and/or will continue to infringe at least Claim 34 of the '519 Patent. On information and belief, Defendants Yum and Pizza Hut are using the apparatus disclosed in Claim 34 and, thus, have infringed and/or will continue to infringe at least Claim 34 of the '519 Patent.

INFRINGEMENT OF THE '686 PATENT

222. ~~213.~~On information and belief, ~~Defendant WPL infringes~~ Defendants WPL and D2S infringe at least Claim 1 of the '686 Patent because ~~it~~ WPL provides software and services, including WPS, which embodies the claims of the '686 Patent in conjunction with the functionality contained in PROC SQL.

223. ~~214.~~For instance, Claim 1 is directed to a computer-implemented method for handling a database statement from a first database system.

224. ~~215.~~On information and belief, WPS constitutes a first database system and receives a first fourth-generation language database statement, wherein the first database statement is formatted according to the first database system's query language format.

225. ~~216.~~On further information and belief, WPS accesses database functional language difference data, wherein the database functional language difference data indicates a format that

contains at least one database functional statement difference from the first database system's query language format.

226. ~~217.~~On further information and belief, WPS generates a second fourth-generation language database statement that is used within a second database system, wherein the second database statement is generated based upon the first database statement and upon the accessed database functional language difference data, wherein the second database statement is compatible with the second database system's query language format.

227. ~~218.~~On further information and belief, WPS uses a tree representative of the syntax of the database language used within the first database system and of metadata associated with the first database system to generate the second database statement.

228. ~~219.~~On further information and belief, the trees used in WPS contain logical pieces parsed from the first fourth-generation language database statement.

229. ~~220.~~On further information and belief, WPS uses a plurality of component software objects to textualize the logical pieces contained in the tree, wherein textualizing a logical piece includes generating fourth-generation database language text.

230. ~~221.~~On further information and belief, WPS uses a first component software object associated with a first logical piece contained in the tree.

231. ~~222.~~On further information and belief, WPS uses the first component software object to associate with a first method to textualize, into fourth-generation database language text, the first component software object's associated logical piece that is contained in the tree.

232. ~~223.~~On further information and belief, WPS uses a plurality of software drivers to textualize logical pieces into fourth-generation database language text.

233. ~~224.~~On further information and belief, WPS uses a first software driver to textualize through a second method a logical piece into fourth-generation database language text that is compatible with the second database system's query language format.

234. ~~225.~~On further information and belief, WPS uses a second software driver to textualize through a third method a logical piece into fourth-generation database language text that is compatible with a third database system's query language format.

235. ~~226.~~On further information and belief, WPS switches association of the first component software object from the first method to the second method for fourth-generation database language textualization.

236. ~~227.~~On further information and belief, because of the switching of the association of the first component software object, the first component software objects within WPS textualize fourth-generation database language text that is compatible with the second database system's query language format and that is not compatible with the first database system's query language format

237. ~~228.~~Accordingly, WPL has practiced, is practicing, and/or will continue to practice the method disclosed in Claim 1.

238. ~~229.~~Similarly, customers that use or have used the claimed PROC SQL functionality of the WPS software have practiced and/or are practicing the method disclosed in Claim 1. On information and belief, Defendants Yum and Pizza Hut have practiced and/or are practicing the method disclosed in Claim 1 by utilizing the WPS software in the manner claimed.

INFRINGEMENT OF THE '996 PATENT

239. ~~230.~~On information and belief, ~~Defendant WPL infringes~~ Defendants WPL and D2S infringe at least Claims 1 and 37 of the '996 Patent because ~~it~~ WPL provides software and services, including WPS, which embodies the claims of the '996 Patent in conjunction with the functionality contained in PROC SQL.

240. ~~231.~~For instance, Claim 1 is directed to a computer-implemented method for processing a query.

241. ~~232.~~On information and belief, WPS receives a native syntax query requesting data stored in a non-native database that uses a non-native syntax, wherein the query is received at an application that is separate from the non-native database, wherein the query requests that the data

be retrieved from the non-native database, wherein the query requests that a processing operation be performed on the requested data by the application, wherein the query includes one or more expressions, and wherein one or more of the expressions includes one or more functions.

242. ~~233.~~On information and belief, WPS parses the native syntax query, wherein parsing includes identifying a function within an expression that cannot be processed by the non-native database, wherein the function specifies the processing operation to be performed on the requested data by the application, wherein a plurality of labels is associated with the function and the expression, and wherein labels include constant labels and format labels.

243. ~~234.~~On information and belief, WPS analyzes the function and the expression to determine a context of the function within the expression, wherein the context describes how the function is used within the expression.

244. ~~235.~~On information and belief, WPS generates, using one or more data processors, a final expression query by obtaining a control string from an internal table for each of the plurality of labels associated with the function and the expression, wherein label modifiers are applied to format labels.

245. ~~236.~~On information and belief, WPS transforms the native syntax query into an equivalent non-native syntax query, wherein transforming includes parsing and inserting the final expression query into the equivalent non-native syntax query using the function, the expression, and the context to translate the function and the expression into multiple functions and multiple expressions that are configured for processing by a non-native database system.

246. ~~237.~~On information and belief, WPS transmits the equivalent non-native syntax query to a non-native database system to generate results and to perform the processing operation on the generated results.

247. ~~238.~~On information and belief, WPS receives processed results from the non-native database system and transmits the processed results to a client application.

248. ~~239.~~Claim 37 of the ’996 Patent is directed toward a computer-program product for processing a query, tangibly embodied in a machine-readable non-transitory storage medium.

249. ~~240.~~On information and belief, WPS includes instructions configured to cause a data processing apparatus to receive a native syntax query requesting data stored in a non-native database that uses a non-native syntax, wherein the query is received at an application that is separate from the non-native database, wherein the query requests that the data be retrieved from the non-native database, wherein the query requests that a processing operation be performed on the requested data by the application, wherein the query includes one or more expressions, and wherein one or more of the expressions includes one or more functions.

250. ~~241.~~On information and belief, WPS includes instructions configured to cause a data processing apparatus to parse the native syntax query, wherein parsing includes identifying a function within an expression that cannot be processed by the non-native database, wherein the function specifies the processing operation to be performed on the requested data by the application, wherein a plurality of labels are associated with the function and the expression, and wherein labels include constant labels and format labels.

251. ~~242.~~On information and belief, WPS includes instructions configured to cause a data processing apparatus to analyze the function and the expression to determine a context of the function within the expression, wherein the context describes how the function is used within the expression.

252. ~~243.~~On information and belief, WPS includes instructions configured to cause a data processing apparatus to generate a final expression query by obtaining a control string from an internal table for each of the plurality of labels associated with the function and the expression, wherein label modifiers are applied to format labels.

253. ~~244.~~On information and belief, WPS includes instructions configured to cause a data processing apparatus to transform the native syntax query into an equivalent non-native syntax query, wherein transforming includes parsing and inserting the final expression query into the equivalent non-native syntax query using the function, the expression, and the context to translate the function and the expression into multiple functions and multiple expressions that are configured for processing by a non-native database system.

254. ~~245.~~On information and belief, WPS includes instructions configured to cause a data processing apparatus to transmit the equivalent non-native syntax query to a non-native database system to generate results and to perform the processing operation on the generated results.

255. ~~246.~~On information and belief, WPS includes instructions configured to cause a data processing apparatus to receive processed results from the non-native database system; and transmit the processed results to a client application

256. ~~247.~~Accordingly, WPL has practiced, is practicing, and/or will continue to practice the method disclosed in Claim 1.

257. ~~248.~~Similarly, customers that use or have used the claimed PROC SQL functionality of the WPS software have practiced and/or are practicing the method disclosed in Claim 1. On information and belief, Defendants Yum and Pizza Hut have practiced and/or are practicing the method disclosed in Claim 1 by utilizing the WPS software.

258. ~~249.~~WPL is making, using, selling, offering for sale, and/or importing the apparatus disclosed in Claim 37 and, thus, has infringed and/or will continue to infringe at least Claim 37 of the '996 Patent. Defendants Yum and Pizza Hut are using the apparatus disclosed in Claim 37 and, thus, have infringed and/or will continue to infringe at least Claim 37 of the '996 Patent.

INFRINGEMENT OF THE '458 PATENT

259. ~~250.~~On information and belief, ~~Defendant WPL infringes~~ Defendants WPL and D2S infringe at least Claim 61 of the '458 Patent because ~~it~~ WPL provides software and services, including WPS, which embodies the claims of the '458 Patent in conjunction with the functionality contained in PROC ASSOCRULES. On information and belief, additional infringing WP~~L~~S software and services include the WPS Hub and WPS Workbench.

260. ~~251.~~ For instance, Claim 61 is directed to a model repository system.

261. ~~252.~~On information and belief, WPS has a data store for storing a plurality of data records.

262. ~~253.~~On information and belief, WPS has a data mining application for analyzing the data records and for generating a plurality of data models.

263. ~~254.~~On information and belief, WPS has a model repository for storing the generated data models, wherein the model repository includes one or more index structures containing a plurality of attributes associated with the data models.

264. ~~255.~~On information and belief, WPS has a model repository facility for exporting the generated data models to the model repository.

265. ~~256.~~On information and belief, WPS has first configuration data store that stores information to be used by the model repository facility in exporting the generated data models to the model repository.

266. ~~257.~~On information and belief, WPS has a second configuration data store that stores information to be used by the model repository system in building the one or more indexes in the model repository.

267. ~~258.~~WPL is making, using, selling, offering for sale, and/or importing the system disclosed in Claim 61 and, thus, has infringed and/or will continue to infringe at least Claim 61 of the '458 Patent. On information and belief, Defendants Yum and Pizza Hut are using the system disclosed in Claim 61 and, thus, have infringed and/or will continue to infringe at least Claim 61 of the '458 Patent.

FIRST CAUSE OF ACTION
DIRECT COPYRIGHT INFRINGEMENT OF THE SAS SYSTEM AGAINST ~~ALL DEFENDANTS~~ WPL, LUMINEX, YUM, PIZZA HUT, AND SHAW UNDER 17 U.S.C. § 101 *et seq.*

268. ~~259.~~Plaintiff repeats and incorporates by reference each and every allegation of the preceding paragraphs ~~1-258~~ of this Complaint, as though fully set forth herein.

269. ~~260.~~The SAS System was created by SAS, and both the code and the non-literal elements of the SAS System, including without limitation, the non-literal elements described in this Complaint, reflects thousands of creative choices and possesses at least the level of creative expression required for copyrightability under United States Copyright Law.

270. ~~261.Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have never had and do not have any permission or authorization from SAS to reproduce, distribute, display, sell, and/or create derivative works of the SAS System, including without limitation its non-literal elements.

271. ~~262.Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have gained access to the SAS System and possession of copies of the SAS System through fraudulent and other means as partially described in this Complaint.

272. ~~263.Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw are knowingly, unlawfully, and willfully reproducing, distributing, displaying, selling, and/or creating derivative works of the SAS System without SAS's authorization or permission.

273. ~~264.~~As a direct and proximate result of ~~Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's infringement of the SAS System, SAS has suffered and is suffering irreparable harm and damage.

274. ~~265.~~As a direct and proximate result of ~~Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's infringement of the SAS System, SAS has lost substantial revenue.

275. ~~266.~~As a direct and proximate result of ~~Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's infringement of the SAS System, ~~Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have unlawfully gained substantial profits, including through increased revenues and cost savings.

276. ~~267.Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's unlawful copyright infringement has been willful as defined by the United States Copyright Act.

277. ~~268.~~Barring an injunction, SAS will continue to suffer immense and irreparable harm and damage.

SECOND CAUSE OF ACTION
DIRECT COPYRIGHT INFRINGEMENT OF THE SAS MANUALS AGAINST ~~ALL DEFENDANTS~~ WPL, LUMINEX, YUM, PIZZA HUT, AND SHAW 17 U.S.C. § 101 *et seq.*

278. ~~269.~~Plaintiff repeats and incorporates by reference each and every allegation of the preceding paragraphs ~~1-268~~ of this Complaint, as though fully set forth herein.

279. ~~270.~~The SAS Manuals were created by SAS, and possess at least the level of creative expression required for copyrightability under United States Copyright Law.

280. ~~271.Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have never had and do not have any permission or authorization from SAS to reproduce, distribute, display, sell, and/or create derivative works of the SAS Manuals.

281. ~~272.Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have gained access to the SAS Manuals and possession of copies of the SAS Manuals through improper means as partially described in this Complaint.

282. ~~273.Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw are knowingly, unlawfully, and willfully reproducing, distributing, displaying, selling, and/or creating derivative works of the SAS Manuals without SAS's authorization or permission, as the language, PROC statements, SSO and output design reflected in the SAS Manuals have been incorporated into the infringing WPS product.

283. ~~274.~~As a direct and proximate result of ~~Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's infringement of the SAS Manuals, SAS has suffered and is suffering irreparable harm and damage.

284. ~~275.~~As a direct and proximate result of ~~Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's infringement of the SAS Manuals, SAS has lost substantial revenue.

285. ~~276.~~As a direct and proximate result of ~~Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's infringement of the SAS Manuals, ~~Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have unlawfully gained substantial profits, including through increased revenues and cost savings.

286. ~~277.Defendants'~~ WPL's, Luminex's, Yum's, Pizza Hut's, and Shaw's unlawful copyright infringement has been willful as defined by the United States Copyright Act.

287. ~~278.~~Barring an injunction, SAS will continue to suffer immense and irreparable harm and damage.

THIRD CAUSE OF ACTION
CONTRIBUTORY COPYRIGHT INFRINGEMENT OF THE SAS SYSTEM AND SAS MANUALS AGAINST WPL-, D2S, AND LUMINEX UNDER 17 U.S.C. § 101 *et seq.*

288. ~~279.~~Plaintiff repeats and incorporates by reference each and every allegation of the preceding paragraphs ~~1-278~~ of this Complaint, as though fully set forth herein.

289. ~~280.~~WPL, with knowledge of the infringing activity of Luminex and the Customer Defendants, as well as of third-party infringing customers, has induced, caused and/or materially contributed to the acts of those other Defendants and third-parties in infringing upon the SAS System and SAS Manuals.

290. ~~281.~~WPL has provided copies of the infringing clone of the SAS System to Luminex with full knowledge that it is reproducing, distributing, displaying, selling, and/or creating derivative works of the SAS System and SAS Manuals in violation of SAS's copyright rights.

291. ~~282.~~WPL has provided copies of the infringing clone of the SAS System to the Customer Defendants as well as third-party customers, with full knowledge that the Customer Defendants and the third-party customers are running the infringing software on their servers and further reproducing, distributing, displaying, selling, and/or creating derivative works of the SAS System and SAS Manuals in violation of SAS's copyright rights.

292. D2S, with knowledge of the infringing activity of WPL, as well as of Luminex, the Customer Defendants, and third-party infringing customers, has induced, caused and/or materially contributed to the acts of those other Defendants and third-parties in infringing upon the SAS System and SAS Manuals.

293. ~~283.~~Luminex has provided copies of the infringing clone of the SAS System to their third-party customers, with full knowledge that the third-party customers are running the infringing software on their servers and further reproducing, distributing, displaying, selling, and/or creating derivative works of the SAS System and SAS Manuals in violation of SAS's copyright rights.

294. ~~284.~~WPL~~-~~, D2S, and Luminex have knowingly, unlawfully, and willfully taken their contributorily infringing actions without SAS's authorization or permission.

295. ~~285.~~As a direct and proximate result of WPL's~~-~~, D2S's, and Luminex's contributory infringement of the SAS System and SAS Manuals, SAS has suffered and is suffering irreparable harm and damage.

296. ~~286.~~As a direct and proximate result of WPL's~~-~~, D2S's, and Luminex's contributory infringement of the SAS System and SAS Manuals, SAS has lost substantial revenue.

297. ~~287.~~As a direct and proximate result of WPL's~~-~~, D2S's, and Luminex's contributory infringement of the SAS System and SAS Manuals, Defendants have unlawfully gained substantial profits, including through increased revenues and cost savings.

298. ~~288.~~WPL's~~-~~, D2S's, and Luminex's unlawful contributory infringement has been willful as defined by the United States Copyright Act.

299. ~~289.~~Barring an injunction, SAS will continue to suffer immense and irreparable harm and damage.

FOURTH CAUSE OF ACTION
VICARIOUS COPYRIGHT INFRINGEMENT OF THE SAS SYSTEM AND SAS MANUALS AGAINST WPL~~-~~, D2S, AND LUMINEX UNDER 17 U.S.C. § 101 *et seq.*

300. ~~290.~~Plaintiff repeats and incorporate by reference each and every allegation of the preceding paragraphs ~~1~~ ~~282~~ of this Complaint, as though fully set forth herein.

301. ~~291.~~WPL has the right and ability to control the infringing actions of Luminex and the Customer Defendants, as well as of third-party infringing customers, including without limitation the ability to withhold the infringing software from the Re-Seller Defendants, Customer Defendants, and their third-party infringing customers.

302. D2S has the right and ability to control the infringing actions of WPL, Luminex, and the Customer Defendants, as well as of third-party infringing customers, including without limitation the ability to withhold the infringing software from the Re-Seller Defendants, Customer Defendants, and their third-party infringing customers.

303. ~~292.~~Luminex has the right and ability to control the infringing actions of their third-party infringing customers, including without limitation the ability to withhold the infringing software from their third-party infringing customers.

304. ~~293.~~WPL receives a substantial direct financial benefit from and has a direct and obvious financial interest in the infringement of the SAS System and SAS Manuals by Luminex, and the Customer Defendants, as well as by third-party infringing customers, each of who pays WPL for access to and copies of the infringing software.

305. D2S receives a substantial direct financial benefit from and has a direct and obvious financial interest in the infringement of the SAS System and SAS Manuals by WPL, which pays D2S licensing fees for the infringing software.

306. ~~294.~~Luminex receives a substantial direct financial benefit from and has a direct and obvious financial interest in the infringement of the SAS System and SAS Manuals by its third-party infringing customers, each of whom pays Luminex for access to and copies of the infringing software.

307. ~~295.~~WPL~~–~~, D2S, and Luminex have knowingly, unlawfully, and willfully taken their vicariously infringing actions without SAS's authorization or permission.

308. ~~296.~~As a direct and proximate result of WPL's~~–~~, D2S's, and Luminex's vicarious infringement of the SAS System and SAS Manuals, SAS has suffered and is suffering irreparable harm and damage.

309. ~~297.~~As a direct and proximate result of WPL's~~–~~, D2S's, and Luminex's vicarious infringement of the SAS System and SAS Manuals, SAS has lost substantial revenue.

310. ~~298.~~As a direct and proximate result of WPL's~~–~~, D2S's, and Luminex's vicarious infringement of the SAS System and SAS Manuals, Defendants have unlawfully gained substantial profits, including through increased revenues and cost savings.

311. ~~299.~~WPL's~~–~~, D2S's, and Luminex's unlawful vicarious infringement has been willful as defined by the United States Copyright Act.

312. ~~300.~~Barring an injunction, SAS will continue to suffer immense and irreparable harm and damage.

FIFTH CAUSE OF ACTION
INFRINGEMENT OF U.S. PATENT NO. 7,170,519

313. ~~301.~~Plaintiff repeats and incorporates by reference each and every allegation of the preceding paragraphs ~~1-300~~ of this Complaint, as though fully set forth herein.

314. ~~302.~~SAS is the sole owner of the entire right, title, and interest in and to the '519 Patent, including the right to sue and recover for any and all infringements thereof.

315. ~~303.~~On information and belief, since at least the filing of this Complaint, Defendants WPL and D2S, without authorization or license from SAS, ha~~s~~ve been and ~~is~~ are presently, indirectly infringing at least claim 1 of the '519 Patent, including actively inducing infringement of the '519 Patent under 35 U.S.C. § 271(b). Such inducements include, without limitation, with specific intent to encourage infringement, knowingly inducing customers to use directly infringing articles and methods that WPL and D2S knew or should know infringe one or more claims of the '519 Patent. WPL and/or D2S instruct ~~its~~ their customers how to use the patented inventions of the '519 Patent by operating WPS in accordance with its specifications. On information and belief, WPL and/or D2S also ~~informs its~~ inform their customers to use SAS manuals and instructions which inform ~~WPL~~ the customers how to use the patented inventions of the '519 Patent. WPL and D2S specifically intend that ~~s~~ thei~~ts~~ r customers directly infringe by implementing a computer-implemented method for generating graphical displays in an infringing manner as set forth above.

316. ~~304.~~On information and belief, customers of WPL and/or D2S, including Defendants Yum and Pizza Hut, have been and are presently directly infringing, either literally or through the doctrine of equivalents, at least claim 1 of the '519 Patent, as infringement is defined by 35 U.S.C. § 271(a), including through the making, using, selling and offering for sale methods and articles infringing one or more claims of the '519 Patent. On information and belief, such

infringements include, without limitation, the use of WPS and the methods included therein that generates graphical displays in an infringing manner.

317. ~~305.~~On information and belief, Defendants WPL, Yum, and Pizza Hut, without authorization or license from SAS, have been and are presently directly infringing, either literally or through the doctrine of equivalents, at least Claim 34 of the '519 Patent, as infringement is defined by 35 U.S.C. § 271(a), including through the making, using, selling, offering for sale, and importing methods and articles (WPS) infringing one or more claims of the '519 Patent. Defendants are thus liable for direct infringement of at least Claim 34 the '519 Patent pursuant to 35 U.S.C. § 271(a). On information and belief, such infringements include, without limitation, the making, using, selling, offering for sale, and/or importing WPS.

318. ~~306.~~As a result of the direct and indirect infringement of the '519 Patent, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

319. ~~307.~~On information and belief, Defendants WPL and D2S had actual notice of the '519 Patent and knew, or should have known, that ~~its~~ their activities and the activities of the other Defendants described above infringe the '519 Patent directly or indirectly. Alternatively, WPL's and D2S's actions (and inactions) in developing a clone to the SAS System and selling ~~its~~ the WP~~L~~S software directly to SAS customers constitutes willful blindness sufficient to convey actual knowledge of the '519 Patent and its customer's infringement of the '519 Patent. WPL ~~has~~ and D2S have nonetheless continued to engage in ~~its~~ infringing acts. Accordingly, WPL's and D2S's infringement is willful and deliberate, and this case is exceptional under 35 U.S.C. § 285.

SIXTH CAUSE OF ACTION
INFRINGEMENT OF U.S. PATENT NO. 7,477,686

320. ~~308.~~Plaintiff repeats and incorporates by reference each and every allegation of the preceding paragraphs ~~1-307~~ of this Complaint, as though fully set forth herein.

321. ~~309.~~SAS is the sole owner of the entire right, title, and interest in and to the '686 Patent, including the right to sue and recover for any and all infringements thereof.

322. ~~310.~~On information and belief, since at least the filing of this Complaint, Defendants WPL and D2S, without authorization or license from SAS, ha~~s~~ve been and ~~is~~ are presently, indirectly infringing at least claim 1 of the '686 Patent, including actively inducing infringement of the '686 Patent under 35 U.S.C. § 271(b). Such inducements include, without limitation, with specific intent to encourage infringement, knowingly inducing customers to use infringing articles and methods that WPL and D2S knew or should know infringe one or more claims of the '686 Patent. WPL ~~instructs its~~ and/or D2S instruct their customers how to use the patented inventions of the '686 Patent by operating WPS in accordance with its specifications. On information and belief, WPL and/or D2S also ~~informs its~~ inform their customers to use SAS manuals and instructions which inform ~~WPL~~ the customers how to use the patented inventions of the '519 Patent. WPL and D2S specifically intend that ~~s~~ thei~~ts~~ r customers infringe by implementing a computer-implemented method for handling a database statement in an infringing manner as set forth above.

323. ~~311.~~On information and belief, customers of WPL and/or D2S, including Defendants Yum and Pizza Hut, without authorization or license from SAS, have been and are presently directly infringing, either literally or through the doctrine of equivalents, at least claim 1 of the '686 Patent, as infringement is defined by 35 U.S.C. § 271(a), including through the making, using, selling, offering for sale, and/or importing methods and articles infringing one or more claims of the '686 Patent. On information and belief, such infringements include, without limitation, the use of WPS and its PROC SQL functionality for handling a database statement in an infringing manner.

324. ~~312.~~As a result of the direct and indirect infringement of the '686 Patent, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

325. ~~313.~~On information and belief, Defendants WPL and D2S had actual notice of the '686 Patent and knew, or should have known, that ~~its~~ their activities and the activities of the other Defendants described above infringe the '686 Patent directly or indirectly. Alternatively, WPL's

and D2S's actions (and inactions) in developing a clone to the SAS System and selling ~~its~~ the WP~~L~~S software directly to SAS customers constitutes willful blindness sufficient to convey actual knowledge of the '686 Patent and its customer's infringement of the '686 Patent. WPL ~~has~~ and D2S have nonetheless continued to engage in ~~its~~ infringing acts. Accordingly, WPL's and D2S's infringement is willful and deliberate, and this case is exceptional under 35 U.S.C. § 285.

SEVENTH CAUSE OF ACTION
INFRINGEMENT OF U.S. PATENT NO. 8,498,996

326. ~~314.~~Plaintiff repeats and incorporates by reference each and every allegation of the preceding paragraphs ~~1-313~~ of this Complaint, as though fully set forth herein.

327. ~~315.~~SAS is the sole owner of the entire right, title, and interest in and to the '996 Patent, including the right to sue and recover for any and all infringements thereof.

328. ~~316.~~On information and belief, since at least the filing of this Complaint, Defendants WPL and D2S, without authorization or license from SAS, ha~~s~~ve been and ~~is~~ are presently, indirectly infringing at least claim 1 of the '996 Patent, including actively inducing infringement of the '996 Patent under 35 U.S.C. § 271(b). Such inducements include, without limitation, with specific intent to encourage infringement, knowingly inducing customers to use infringing articles and methods that WPL and D2S knew or should know infringe one or more claims of the '996 Patent. WPL ~~instructs its~~ and/or D2S instruct their customers how to use the patented inventions of the '996 Patent by operating WPS in accordance with its specifications. On information and belief, WPL and/or D2S also ~~informs its~~ inform their customers to use SAS manuals and instructions which inform ~~WPL~~ the customers how to use the patented inventions of the '519 Patent. WPL and D2S specifically intend that ~~s~~ thei~~ts~~ r customers infringe by implementing a computer-implemented method for processing a query in an infringing manner as set forth above.

329. ~~317.~~On information and belief, customers of WPL and/or D2S, including Defendants Yum and Pizza Hut, without authorization or license from SAS, have been and are presently directly infringing, either literally or through the doctrine of equivalents, at least claim 1

of the '996 Patent, as infringement is defined by 35 U.S.C. § 271(a), including through the making, using, selling, offering for sale, and/or importing methods and articles infringing one or more claims of the '996 Patent. On information and belief, such infringements include, without limitation, the use of WPS and its PROC SQL functionality that processes a query in an infringing manner.

330. ~~318.~~On information and belief, Defendants WPL, Yum, and Pizza Hut, without authorization or license from SAS, have been and are presently directly infringing, either literally or through the doctrine of equivalents, at least Claim 37 of the '996 Patent, as infringement is defined by 35 U.S.C. § 271(a), including through the making, using, selling, offering for sale, and/or importing methods and articles (WPS) infringing one or more claims of the '996 Patent. Defendants are thus liable for direct infringement of at least Claim 37 the '996 Patent pursuant to 35 U.S.C. § 271(a). On information and belief, such infringements include, without limitation, the making, using, selling, offering for sale, and/or importing WPS.

331. ~~319.~~As a result of the direct and indirect infringement of the '996 Patent, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

332. ~~320.~~On information and belief, Defendants WPL and D2S had actual notice of the '996 Patent and knew, or should have known, that ~~its~~ their activities and the activities of the other Defendants described above infringe the '996 Patent directly or indirectly. Alternatively, WPL's and D2S's actions (and inactions) in developing a clone to the SAS System and selling ~~its~~ the WP~~L~~LS software directly to SAS customers constitutes willful blindness sufficient to convey actual knowledge of the '996 Patent and its customer's infringement of the '996 Patent. WPL ~~has~~ and D2S have nonetheless continued to engage in ~~its~~ their infringing acts. Accordingly, WPL's and D2S's infringement is willful and deliberate, and this case is exceptional under 35 U.S.C. § 285.

EIGHTH CAUSE OF ACTION
INFRINGEMENT OF U.S. PATENT NO. 6,920,458

333. ~~321.~~Plaintiff repeats and incorporates by reference each and every allegation of the preceding paragraphs ~~1-320~~ of this Complaint, as though fully set forth herein.

334. ~~322.~~SAS is the sole owner of the entire right, title, and interest in and to the '458 Patent, including the right to sue and recover for any and all infringements thereof.

335. ~~323.~~On information and belief, since at least the filing of this Complaint, Defendants WPL and D2S, without authorization or license from SAS, ha~~s~~ve been and ~~is~~ are presently, indirectly infringing at least claim 61 of the '458 Patent, including actively inducing infringement of the '458 Patent under 35 U.S.C. § 271(b). Such inducements include, without limitation, with specific intent to encourage infringement, knowingly inducing customers to use infringing articles and methods that WPL and D2S knew or should know infringe one or more claims of the '458 Patent. WPL and/or D2S instructs ~~its~~ their customers how to use the patented inventions of the '458 Patent by operating WPS in accordance with its specifications. WPL and D2S specifically ~~intends its~~ intend their customers infringe by using a model repository system as set forth above.

336. ~~324.~~On information and belief, Defendants WPL, Yum, and Pizza Hut, without authorization or license from SAS, have been and are presently directly infringing, either literally or through the doctrine of equivalents, at least claim 61 of the '458 Patent, as infringement is defined by 35 U.S.C. § 271(a), including through the making, using, selling, offering for sale, and/or importing methods and articles infringing one or more claims of the '458 Patent. On information and belief, such infringements include, without limitation, the importation and/or use of WPS and its PROC ASSOCRULES functionality, as well as the WPS Hub and WPS Workbench products.

337. ~~325.~~As a result of the direct and indirect infringement of the '458 Patent, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

338. ~~326.~~On information and belief, Defendant WPL and D2S had actual notice of the '458 Patent and knew, or should have known, that its activities and the activities of the other

Defendants described above infringe the '458 Patent directly or indirectly. Alternatively, WPL's and/or D2S's actions (and inactions) in developing a clone to the SAS System and selling ~~its~~ the WP~~L~~S software directly to SAS customers constitutes willful blindness sufficient to convey actual knowledge of the '458 Patent and its customer's infringement of the '458 Patent. WPL ~~has~~ and D2S have nonetheless continued to engage in ~~its~~ their infringing acts. Accordingly, WPL's and D2S's infringement is willful and deliberate, and this case is exceptional under 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff SAS respectfully requests that the Court enter judgment as follows:

A. Adjudging and decreeing that ~~Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have directly infringed the copyrights in the SAS System;

B. Adjudging and decreeing that ~~Defendants~~ WPL, Luminex, Yum, Pizza Hut, and Shaw have directly infringed the copyrights in the SAS Manuals;

C. Adjudging and decreeing that WPL~~,~~, D2S, and Luminex have contributorily infringed the copyrights in the SAS System and the SAS Manuals;

D. Adjudging and decreeing that WPL~~,~~, D2S, and Luminex have vicariously infringed the copyrights in the SAS System and the SAS Manuals;

E. Adjudging and decreeing that Defendants' copyright infringements are willful;

F. Ordering that Defendants pay SAS's actual damages, including a disgorgement of all Defendant's profits related to and/or attributable to the copyright infringement, or alternatively, at SAS's option, that Defendants be ordered to pay statutory damages under the United States Copyright Act;

G. Ordering that Defendants pay SAS's costs and attorneys' fees under the United States Copyright Act;

H. Adjudging and decreeing that WPL, D2S, Yum, and Pizza Hut have directly or indirectly infringed one or more claims of the '519 Patent;

I. Adjudging and decreeing that WPL, D2S, Yum, and Pizza Hut have directly or indirectly infringed one or more claims of the '686 Patent;

J. Adjudging and decreeing that WPL, D2S, Yum, and Pizza Hut have directly or indirectly infringed one or more claims of the '996 Patent;

K. Adjudging and decreeing that WPL, D2S, Yum, and Pizza Hut have directly or indirectly infringed one or more claims of the '458 Patent;

L. Ordering that WPL, D2S, Yum, and Pizza Hut pay SAS any damages SAS has suffered arising out of and/or as a result of their patent infringement, including SAS' lost profits, and in any event no less than a reasonable royalty for Defendants' infringement, and any other relief provided for in 35 U.S.C. § 284;

M. Adjudging and decreeing that WPL's and D2S's infringement of the Patents-in-Suit is deliberate and willful and that WPL and D2S be ordered to pay treble damages under 35 U.S.C. § 284;

N. Ordering that this is an exceptional case under 35 U.S.C. § 285 and that SAS be awarded its attorneys' fees, costs, and expenses;

O. Permanently enjoining Defendants and their corresponding officers, agents, servants, employees, attorneys, affiliates, divisions, subsidiaries, and all persons in active concert or participation with any of them, from infringing the Patents-in-Suit and the copyrights in the SAS System and the SAS Manuals, and/or contributing or inducing anyone to do the same;

P. Ordering that all infringing copies of Defendants' software be impounded and destroyed, and any copies sold to third-parties be recalled and then destroyed at Defendants' expense;

Q. Awarding SAS pre- and post-judgment interest on all monetary awards; and

R. Awarding such other and further relief as the Court may deem just and proper.

JURY DEMAND

Plaintiff hereby demands a jury trial on all issues so triable.

~~Dated: August 2, 2019~~

~~Respectfully submitted,~~

~~/s/ Jason W. Cook~~

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Dated: Respectfully submitted,

Pressly M. Millen

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CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was served on counsel for Defendants via the Court's CM/ECF ~~System on August 2, 2019.~~ system and by email on _____.

Pressly M. Millen

~~*/s/ Jason W. Cook*~~

~~Jason W. Cook~~

Comparison Details	
Title	**Comparison Results**
Date & Time	1/31/2020 2:37:11 PM
Comparison Time	2.45 seconds
compareDocs version	v4.3.200.37

Sources	
Original Document	[Womble][#48378651] [v1] Proposed Second Amended Complaint.docx
Modified Document	[Womble][#48378651] [v3] SAS's Motion for Leave to File Second Amended Complaint - Proposed Second Amended Complaint - Clean.docx

Comparison Statistics	
Insertions	87
Deletions	15
Changes	413
Moves	0
Font Changes	0
Paragraph Style Changes	0
Character Style Changes	0
TOTAL CHANGES	515

Word Rendering Set Markup Options	
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Insertions	
~~Deletions~~	
Moves / ~~Moves~~	
Font Changes	
Paragraph Style Changes	
Character Style Changes	
Inserted cells	
Deleted cells	
Merged cells	
Changed lines	Mark left border.
Comments color	By Author.
Balloons	False

compareDocs Settings Used	Category	Option Selected
Open Comparison Report after Saving	General	Prompt
Report Type	Word	Formatting
Character Level	Word	True
Include Headers / Footers	Word	True
Include Footnotes / Endnotes	Word	True
Include List Numbers	Word	True
Include Tables	Word	True
Include Field Codes	Word	True
Include Moves	Word	True
Show Track Changes Toolbar	Word	True
Show Reviewing Pane	Word	True
Update Automatic Links at Open	Word	False
Summary Report	Word	End
Include Change Detail Report	Word	Separate
Document View	Word	Print
Remove Personal Information	Word	False

Flatten Field Codes	Word	True